CONTRIBUTIONS FROM THE
MUSEUM OF THE AMERICAN INDIAN
HEYE FOUNDATION
Vol. XIV

THE SPIRO MOUND COLLECTION IN THE MUSEUM

BY

E. K. BURNETT

HISTORICAL SKETCH OF THE SPIRO MOUND

BY

FORREST E. CLEMENTS

NEW YORK
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One of the most important archaeological sites found within recent years in the United States is at Spiro, Le Flore County, Oklahoma, where a series of mounds, the most prominent known as the Temple Mound, existed. Unfortunately, at first the site was exploited unscientifically by residents of the area, and much valuable material was destroyed. Many artifacts found their way into dealers' hands and, through them, were distributed among museums and private collectors. In view of the fact that so many of the specimens are unique, it seemed desirable to record those located in the collections of this institution.

This publication is made possible by a generous grant from the Viking Fund, Incorporated, to which organization our Board of Trustees are deeply indebted.

Our sincere thanks are due Mr. John Maffenbeier of Newark, New Jersey, for depositing in this Museum his valuable Spiro Mound material.

We, also, acknowledge with gratitude the aid given us by Dr. Forrest E. Clements in his painstaking work in preparing an account of the history of the site.

GEORGE G. HEYE
DIRECTOR

NEW YORK
NOVEMBER 1945

INTRODUCTION

HOWEVER much the story of the exploitation of the so-called temple mound at Spiro, Le Flore County, Oklahoma, abounds in conflicting statements and confused contradiction, the importance of the material taken from the mound through the hectic energies of commercial diggers is recognized by archaeologists generally.

That curio dealers also recognized its value, but from a financial point of view, was evidenced in the brisk and highly competitive market which developed in the disposition of their joint and individual loot. It is not difficult to believe, the collector demand so far outdistancing the dealer supply, that many pieces of unquestioned authenticity, but from other sites in Oklahoma and Arkansas, were hastily relabelled as being from Spiro. It is not difficult to believe, either, that some definitely fraudulent specimens found their way into the busy marts of trade.

A few pieces in our own collections, definitely suspect, are not included in this catalogue. Such specimens that are questionable, either as to authenticity or provenience, but which are illustrated, are frankly so noted in the text.

About the time publication was decided upon, Mr. John Maffenbeier deposited his interesting Spiro pieces with the Museum and, thus, enabled the inclusion of many specimens not represented in our own holdings. Clearly to distinguish these among the whole group, the identifying MAF is placed after our catalogue number.

Among the many archaeologists who have seen our collection, Dr. James B. Griffin, Mr. Kenneth G. Orr and Dr. Anthony J. Waring, Jr. have shown a particular interest in it. Their doubts have been as equally helpful as their enthusiasms. We are indebted to all of them for their comments and suggestions.

We appreciate, as well, the kindness of Mr. Volney H. Jones, Assistant Professor, Department of Anthropology, University of Michigan, who attempted an indentification of the caked residue existing in one of the large engraved shells; that of Dr. Frederick H. Pough, Curator of Physical Geology and Mineralogy, American Museum of Natural History, who suggested identifications of the

various stone materials; and that of Dr. A. C. Whitford, who examined the fibre, hair and fur textile specimens.

Some of the drawings used as illustrations were done in 1936 by Mr. William C. Orchard; others were made especially for this publication by Mrs. Margaret Sorensen Voetter. The photography is entirely by Mr. Kenneth C. Miller.

OBJECTS OF STONE

PIPES

The long stemmed, single or double bowled pipes are well represented in the collection. Except where otherwise noted, all are of slate.

They combine a long stem, round or oval in cross section, with a central bowl or bowls rising at right angles. Where a single bowl is found, the stem is drilled from one end only; where two bowls exist, the stem is drilled from either end, such drilling terminating at the nearer bowl and not connecting the two.

The tubular bird effigy pipe here illustrated has no reported counterpart in other collections from Spiro.

PLATE I

CAT. 20/7096 (MAF.). A double bowl pipe. The stem is drilled from either end to the near bowl with no connecting lumen between the bowls. Rather heavy horizontal scorings, from the reaming implement employed, are found around the inner surfaces of both bowls.

CAT. 18/7488. A specimen similar to that above with bowls 7/16 in. higher. Interior reaming marks are present although on the upper areas of one bowl these have been smoothed off.

PLATE II

CAT. 20/7095 (MAF.). A single bowl pipe, the stem of which is drilled from one end only. The inner surfaces of the bowl have been smoothed of reaming scorings through half its depth.

CAT. 19/1251. A single bowl pipe, the stem being drilled from one end. At this end, the stem is sharply reduced in diameter and is rounded. At the other end there is a similar dimunition but the distal area is rectangular in plan. An annular incising occurs near

the bowl rim. The top and sides of the stem body each have six circular countersunk areas which were probably made for shell inlays although no trace of such now exists. Red paint is visible in some of these. On the top surface, the inlay sockets are set apart by four interspaced double diamond incisings.

PLATE III

CAT. 20/744. A single bowl pipe, probably of limonite, the stem being drilled from one end only. The solid end has been squared off. The walls of the base of the bowl are quite thick and the drilling connects with the bowl somewhat above the stem level. Tool marks are found in considerable quantity particularly on the outer areas of the bowl.

CAT. 19/1251. Described in text covering pl. II.

CAT. 18/6556. A single bowl pipe, the stem being drilled from one end only. The other end has been squared off.

PLATE IV

CAT. 20/746. A single bowl pipe, drilled from one end, the other being fashioned to a smooth and symmetrical point. The bowl of this specimen is somewhat expanded as it joins the stem. The bowl drilling, however, is of equal diameter throughout its depth, not following the outer bowl lines.

CAT. 18/6432. A single bowl pipe, the bowl being somewhat above average height for the stem length.

CAT. 20/745. A single bowl pipe, the undrilled end of the stem tapering to a blunted point. There are many tool marks on all surfaces.

PLATE V

CAT. 20/749. A pipe bowl. It is possible that originally the projection in front of the bowl was longer. It appears to have been reworked into a slightly uptilted and rounded point after possible breakage.

CAT. 20/748. A pipe bowl with incised curvilinear decoration around the whole stem area and two parallel annular lines near the bowl rim. This is shown in the drawing of the unfolded design on this plate.

CAT. 20/747. A pipe, the stem of which is drilled from one end. The shorter blank end is flattened and oval in cross-section and is decorated with an incised geometrical design, shown in the unfolded drawing on this plate.

PLATE VI

CAT. 20/7122 (MAF.). An outstanding example of a bird effigy pipe of steatite reputed to have come from the Spiro Mound. This specimen, from material and from general form is reminiscent of either Tennessee or Kentucky. Although it is, therefore, here illustrated with that reservation, there seems no reason to believe that it might not have been found at Spiro. Wings are carved bi-laterally and the tail fan lies along the upper surface of the tube, projecting rearward from the bowl. The head is ornamented with a deep central groove curving to a point over the right eye. Parallel ridges outline and accentuate this groove throughout its whole length. The eyes are indicated by well fashioned circular sockets in both of which traces of shell inlays exist. The mouth line shows traces of red paint. The tube drilling is 7/8 in. in diameter, which width is maintained until just before the bowl is reached. This drilling, incidentally, bears toward one side of the tube and enters the bowl under the bird's right wing.

PLATES VII, VIII, IX

CAT. 18/9112. A human effigy pipe of coarsely grained sandstone. Sex is not definitely indicated, but, from the absence of ear spools and the obvious occupation of the figure, it is assumed to be a sitting or squatting female. The pipe bowl is a mortar, roughly rectangular in plan with barrel shaped sides which are marked with vertical parallel incisings. The stem orifice is drilled into the side of the mortar at the figure's right and joins the bowl 1 5/8 in. below its rim. In the figure's right hand is what appears to be a muller with a grooved hand grip. It has been suggested that this object may represent a bag, but a grinding stone seems to be the more logical indentification. In the left hand is a whole ear of corn with the kernels well defined by checkered incisings. An occipital hair knot is formed by a loop of hair being drawn through apertures in a flat rectangular ornament which rests on the figure's back. The hair ends then pass under the ornament, reappearing to be drawn

through the main hair loop, and then tucked under the opposite edge of the ornament. On either shoulder there occurs a definitely formed disc, and the carrying cords of the bag or container suspended on the figure's back appear to run upward from its corners to the shoulder and around the discs or spools, and then carry down to attachment at the approximated belt line. The rear view of the pipe (pl. IX) shows this interesting arrangement.

EAR SPOOLS

A considerable number of the ear ornaments here recorded seem to occur in matched pairs identical in design and varying hardly 1/16 in. in size.

The material from which they are made, except for two pair, is shale—some of it of sandy content. In diameter, the faces, or front flanges, range from 2⅝ in. to 3⅜ in. excepting the few odd smaller specimens illustrated on pl. XIV. In thickness, the range is from ⅝ in. to 1 in. The central cores, remaining after the spool grooves were made and through which the perforations occur, range in width from 1 1/16 in. to 1 11/16 in., the perforations having diameters ranging from ¼ in. to 1 in.

Although estimates vary, it would appear that several hundred stone ear spools have been taken from the Spiro site through one agency or another.

PLATE X

CAT. 18/6433. A carefully fashioned specimen with a four arm volute swastika form emanating from the central perforation. The surface of the front flange is very slightly concave; that of the rear, which is broken, is flat. No traces of copper overlay exist on any surface.

CAT. 18/6521. Triple parallel lines extend from the central perforation to the perimeter, forming a cross and dividing the outer surface of the spool into quarters in each of which is found a concentric circle element. There are two specimens so closely matched as to size as to be considered a pair. The front flange is very slightly concave, the rear flange is flat. No traces of copper overlay exist on any surface.

CAT. 20/684. A matched pair of spools which retain an almost unbroken sheet of overlaid copper, curling over the perimeter and

extending down the surfaces of the central perforation. Each has four of the forked or weeping eye elements arranged with precision on the face of the ornament. The surfaces of both flanges are flat.

CAT. 20/682. A matched pair having a chain-link decoration on the face of the front flange. One of the specimens retains a heavy overlay of copper which extends into, but not through, the central perforation. The other spool has but fragmentary overlay remaining. The surfaces of both flanges are flat.

CAT. 20/680. A single spool, decorated with a square figure with loop corners and four double chevrons. Slight traces of an original copper overlay remain. The surfaces of both flanges are flat.

PLATE XI

CAT. 20/686. The commonest type of decoration found in the collection, there being nine specimens in total. The areas between the arms of a central cross figure, as found in CAT. 18/6521 on the preceding plate, have been filled with equally spaced chevrons. Other specimens, CAT. 18/6496 (2); 19/8078 (2); 20/685 (2); 20/7107 MAF. (2). All specimens show some traces of copper overlay, in four the impressed sheet being almost intact. In all instances the surfaces of the spools are flat or only slightly convex.

CAT. 18/6497. On this pair of spools, the decoration consists of three five-pointed figures enlarging from the center and a series of arced lines to fill the blank spaces between the points as the perimeter is reached. Eight specimens of this type exist in the collection. Other catalogue numbers are: 19/8079 (2); 19/8080 (2); 20/683 (2). Almost complete overlay copper sheets remain on five specimens with large fragments on the others. The surfaces of the flanges are flat, slightly concave and slightly convex.

CAT. 19/8081. A four-barred Greek cross, the arms of which are connected by concentric arced incisings. The copper sheet overlay is intact except for a slight break at one section of the rim and extends throughout the sides of the central perforation. The surfaces of both front and rear flanges are flat.

CAT. 20/678. A matched pair of larger spools carrying the simple design of five concentric circles. The central perforation is considerably smaller than that usually found in specimens of this series. The front surface is convex, that of the rear flange is flat.

CAT. 18/6522. A pair of spools with three deeply worked concentric circles as decoration. Fragments of a heavy copper overlay exist over small areas of both spools. The surfaces of both front and rear flanges are flat.

PLATE XII

CAT. 18/6526. A spool with checkered incising and only slight traces of copper stain which may more probably be from contact with a piece of the metal rather than the remnant of an overlay. The spool is unperforated and the surfaces of both flanges are flat.

CAT. 18/6524. Here the decoration is similar to that on the group illustrated by cat. 20/686 (pl. XI) but this spool is much larger, the central cross figure more distinguishable and the chevron incisings are more widely spaced. One of this pair presents traces of copper stain, probably from contact rather than from an original overlay. The front surfaces are very slightly concave, those of the rear flanges, which are broken, are flat.

CAT. 18/6523. This matched pair of perforated spools carry the central cross, the incisings connecting its arms combining the line arrangements as found in CAT. 20/686 and 19/8081 (pl. XI). Traces of copper overlay exist. The front surface is slightly concave, that of the rear flange being flat.

CAT. 18/6552. A matched pair of unperforated spools with a raised Greek cross in three concentric circles. Traces of copper overlay are found. The front flange has a flat surface, that of the rear is slightly convex.

PLATE XIII

CAT. 18/6435. A pair of large unperforated spools with a central and seven circling nodes within a rounded rim as decoration. This front surface is slightly concave, the rear one being flat. No traces of copper overlay exist on either specimen.

CAT. 20/681. A pair of spools of smaller size but similar to CAT. 18/6435. Six nodes are arranged around the central one, and the encircling rim, while rounded at its periphery is more sharply cut on its inner line. Both flanges are flat. A small area of original copper overlay remains.

CAT. 20/677. A spool sharply concave from its rim to the base of a single central node the apex of which rises higher than the rim

plane. The rear flange surface is flat. Considerable remains of copper overlay exist.

CAT. 20/679. Another unperforated specimen with a raised central cross figure, the quartered surfaces each carrying three crudely shaped nodes which have been flattened. The workmanship on this specimen is much poorer than on any here shown. Tool marks are plentiful. The surface of either flange is flat.

PLATE XIV

CAT. 19/8083, *a*. A perforated spool without incised decoration. The surface of the front flange is slightly concave, that of the rear is flat. The collection contains five other similar specimens, CAT. 20/666; 20/672 (2); 20/675; 20/676. Some retain considerable portions of an original copper overlay.

CAT. 18/6437, *b*. A pair of spools which, because of the size of the aperture are little more than rings. Both inner and outer flanges are rounded and both have been entirely covered with a copper overlay, much of which remains in place.

CAT. 20/670, *c*. A matched pair of perforated spools of a reddish brown indurated clay, undecorated and devoid of any trace of copper overlay. Another pair, but of smaller diameter, 2½ in., exists in the collection, CAT. 20/669.

CAT. 19/8082, *d*. A small perforated spool with a concave surfaced front flange and a convex rear one.

CAT. 20/667, *e*. A spool with a large perforation and with flat front and rear surfaces. There are traces of copper overlay on the front surface and the sides of the perforated area.

CAT. 18/6436, *f*. A pair of perforated spools undecorated except for copper overlay which extends through the perforation. There are three other similar specimens in the collection: CAT. 20/671 (2), on which there has been a complete overlay of copper on the rear, as well as the front flanges, and CAT. 20/673.

CAT. 18/6525, *g*. A perforated spool, both front and rear surfaces of which are convex. The perimeters of both flanges are sharp, the only specimen in the collection presenting this feature. There is no trace of copper overlay, but the outer surface shows parallel markings which may have been made by an original overlay decorated with a ribbed design. Another pair (CAT. 20/668) with similar

markings are in the collection. The surfaces of these, however, are flat and their circumferences unsharpened.

CAT. 19/1252, *h*. A spool with a rounded rim and deeply concave on its face. The rear flange is flat. The spool has an overall thickness of 13/16 in. at the rounded crest of the rim and a scant ¼ in. at the perforation.

The only types of spools not illustrated are represented by a pair (CAT. 18/6527) which are plain and with no traces of copper overlay. They measure 3⅛ in. in diameter. Drilling for a central perforation is incomplete, having been commenced on both front and rear flanges of one and on the rear flange only of the other. A small, light spool (CAT. 20/665) with a diameter of 1 9/16 in. is also not illustrated. The surfaces of both flanges of this specimen are slightly convex. One additional pair of perforated spools are in the collection. In diameter and perforation measurements they range with CAT. 20/668 but with no surface markings. Both inner and outer flanges are flat.

MACES

PLATE XV

CAT. 20/7100 (MAF.). A flint mace of comparatively simple form and somewhat crude workmanship. The shaft shows two breaks. The stone is grayish brown.

CAT. 20/7099 (MAF.). The longest and most elaborate mace in the collection. The material is brown flint. The workmanship excels that on any of the other specimens in the series here shown.

PLATE XVI

CAT. 18/9335. A flint mace not showing the fine secondary chipping found on CAT. 20/7099 (MAF.) or on its companion on this plate. This specimen has traces of red and black paint on both surfaces. Red is fairly constant through the head and upper half of the shaft with only slight traces of black. The hand grip is not painted red, but traces of black are found upon it.

CAT. 18/9334. A flint mace showing considerable remains of red, and traces of white, paint. This decoration covers the shaft and head on both surfaces, the center line of demarcation of the colors being visible in the illustration. The hand grip is unpainted.

BATONS OR SPUDS

PLATE XVII

CAT. 20/866. A well fashioned specimen of a mottled grayish brown color with a deeper spade surface than the other two illustrated on this plate. The handle terminates in a symmetrical point.

CAT. 20/7101 (MAF.). The longest and heaviest example in the series. The handle has a chisel end, a feature not shown in the illustration. The stone is a dark gray.

CAT. 20/755. Another symmetrically worked piece of light mottled gray color, its handle terminating in a blunted point. These are all made of limestone.

PLATE XVIII

CAT. 20/756. In this specimen the wings of the spade are relatively longer than those found on any other specimen in the series and their surfaces at the shaft junction are not rounded. The stone is a light mottled greenish brown. The handle terminal has been squared off.

CAT. 20/761. A specimen with a notched spade, its handle ending in a blunt point. The junctions of the wings with the shaft are quite deeply grooved. The stone is a light green.

CAT. 20/757. A smaller example than the other two illustrated on this plate and with unrounded under surfaces of the spade wings, as found in CAT. 20/756. The handle terminates in a blunt point, the color being a light greenish gray. These are all made of an igneous stone.

PLATE XIX

CAT. 20/759. A smaller specimen with notched wings. The stone is a light green and there are traces of red paint in the serrations.

CAT. 20/758. The smallest example of spud in the collection. It is of a mottled grayish limestone.

CAT. 20/760. The only specimen of chipped chert in the baton series. It is of rather crude workmanship and made from a cream-brown stone.

CAT. 18/9116. A bipointed gorget of slate with three perforations. The end with the two perforations was broken through the outer drilling and not recovered. This is shown restored in the illustration.

PLATE XX

CAT. 20/7097 (MAF.). Two flat, thin slate wands or scepters. The edges of both show polishing from wear.

In connection with these finished specimens, it should be noted that the collection also contains a slate blank of such dimensions as to suggest its having been prepared for the manufacture of such a wand (CAT. 20/8147 MAF.). It has an overall length of 2 ft. 5½ in., is 2 in. wide and 13/16 in. thick. One broad surface shows markings of matting similar in woven technique to the container of the axe cache, CAT. 18/9077 (pl. LXX).

CAT. 20/7102 (MAF.). A well fashioned wand or baton of slate. The only specimen of this form in the collection.

AXES

PLATE XXI

CAT. 20/7103 (MAF.). A monolithic axe of greenstone. The specimen is well finished with but few tool marks in evidence. An extension from the butt of the handle is perforated. This feature is found in another specimen from Tennessee and one from Alabama in our collections, although, in the latter, the perforated flange is not parallel with the axis of the blade, as in the specimen illustrated.

CAT. 20/754. An axe of quite different form, said to have come from the Spiro Mound. It is fashioned from indurated clay and is highly polished. There is definite question as to the authenticity of this piece. In this connection, it is to be noted that it and the stone chisels, CAT. 20/764 and 20/753 (pl. XXII, *c* and *e*) are not alone of the same material but show markedly similar characteristics in workmanship. On both chisels the edge bevelling is done at an abrupt angle and the end of the axe handle is similarly treated. Other stone specimens from this site have not been so ground. Except for two pair of earspools, CAT. 20/670 (pl. XIV, *c*) and 20/669 (not illustrated), which do not show the high polish, no other specimens made from this stone exist in our Spiro Collection.

CHISELS

PLATE XXII

CAT. 20/765, *a*. A short chisel with a round shaft and an expanded head.

CAT. 20/763, *b*. A long chisel with a flat shaft and only a slight expansion at its flat head.

CAT. 20/764, *c*. A long chisel of polished indurated clay with a flat handle and broad, flat head.

CAT. 20/762, *d*. A long chisel with an expanded head with traces of red paint along the shaft.

CAT. 20/753, *e*. A double-ended flat chisel of polished indurated clay.

CAT. 20/7108 (MAF.), *f*. A small flat chisel of green stone with a slightly expanded head.

CAT. 20/751, *g*. A flat chisel of slate.

CAT. 20/752, *h*. A long flat chisel.

CAT. 20/750, *i*. A long flat chisel of sandstone.

Except where otherwise noted, the chisels are all of a hard igneous stone, some of them possibly diorite.

MISCELLANEOUS OBJECTS

PLATE XXIII

CAT. 18/9330. A discoidal of mottled gray diabasic granite.

CAT. 20/7121 (MAF.). A discoidal of a streaked cream and brown chert, highly polished.

CAT. 20/743. A somewhat crudely formed sandstone bowl with a human head carved on one end. The rim is rounded and merges gradually with the bowl floor. Its base is flat as is the area from under the chin to the ground line. This speciment is reputed to have come from the Spiro Mound.

PLATE XXIV

CAT. 18/9329, *a*. A boat stone of mottled brownish gray. The keel ridge is flattened, throughout its whole arc, a feature not evident in the illustration.

CAT. 20/696, *b*. A biconvex disc of stone with no remaining evidence of any copper overlay.

CAT. 20/687, *c*. A shaped pendant of hard, black shale with an annular groove at its top for suspension.

CAT. 18/6529, *d*. Three planoconvex discs of stone with a large area of sheet copper overlay still existing on each.

CAT. 20/690, *e*. A black shale bead, in the form of a flattened cone.

CAT. 20/689, *f*. A flat rectangular pendant of black shale.

CAT. 20/740, *g*. A spindle whorl made from a sherd of incised pottery.

CAT. 20/688, *h*. A flat triangular pendant of brown stone.

CAT. 19/8084, *i*. A limonite concretion, roughly oval in section, with a three parallel line incised meander on either flat surface. As one end is broken, no idea may be had as to the original length of this specimen.

PLATE XXV

CAT. 18/7081, *a*. Two cylindrical hematite beads.

CAT. 18/6427, *b*. Five large flattened globular beads which range in diameter from 7/8 in. to 1½ in., and in thickness from 9/16 in. to 7/8 in. Two of these specimens are illustrated.

CAT. 18/6553, *c*. A cylindircal bead of galena.

CAT. 20/694, *d*. Seventeen barrel shaped beads of black shale averaging ¾ in. in length and ½ in. in diameter. Another group of similar beads (CAT. 20/692), some of which are square or hexagonal, is represented by ten specimens.

CAT. 20/695, *e*. A long cylindrical bead in which the drilling is enlarged throughout so that the walls are practically those of a tube.

CAT. 18/6430, *f*. A cylindrical bead.

CAT. 18/6429, *g*. A cylindrical bead only partly perforated. The collection also has one flattened globular bead with incomplete perforation (CAT. 18/6428).

Not illustrated are nineteen small globular beads (CAT. 20/691), nine flattened globular specimens similar to CAT. 18/6427 but considerably smaller (CAT. 20/693), and one disc bead with a diameter of ¾ in. and a thickness of 3/8 in.

PLATE XXVI

CAT. 18/9113. A boat stone of rock crystal. The body of the specimen is symmetrically smoothed to a three-quarter round, one end being carved to represent the head of one of the large cats, possibly the cougar; the other to represent the head of an owl. In the illustration of this specimen the full side view is shown in actual size. The under surface of the stone is hollowed to a depth of 3/8 in. and a

width of ¾ in. at the center. This cavity tapers and becomes gradually shallower as the carved heads are reached.

Other stone objects found in the collection but not illustrated here are a rock crystal plummet (CAT. 20/7111 MAF.) which has a length of 3⅞ in.; a bipointed chipped flint blade, 1 ft. 10 in. long with a maximum width of 1⅝ in. (CAT. 20/7098 MAF.); and a full grooved axe head of a dark reddish quartzite (CAT. 18/6431), having a length of 4⅛ in., a width of 2½ in. and a maximum thickness of 1⅞ in.

OBJECTS OF SHELL

Perhaps the most interesting group of specimens from Spiro are the engraved conch shells (*Busycon perversa*). Estimates as to the total number of these unusual pieces recovered, whole or nearly so, run from sixty-five to one hundred. There are sixteen in our collection and, in addition, a number of small fragments.

On the interior of one of our specimens (CAT. 18/9082) there remains a series of distinct fluid-table rings, each succeeding lower mark showing a heavier sedimentation due, quite probably, to a thickening of the content as evaporation proceeded. It has been suggested on several occasions that this might class the objects as cups, and that the residue came from some ceremonial drink. Waring and Holder[1] have mentioned this point specifically.

In the hope of making a positive identification of the caking, Mr. Volney H. Jones consented to examine specimens of it. Unfortunately, no samples of any size could be removed, as the material proved brittle and crumbled to powder when attempts were made to scale it from the shell wall. The following is quoted from Jones' report:

> "The material scraped from the shell is definitely not mud or drippings but is of organic nature. This would suggest that it is from residue resulting from the use of the shell, whether as a drinking vessel or container or utensil for some other purpose is not evident. The material has organic structure but further than that I am completely puzzled. It does not resemble anything else which I have seen in fourteen years of examining archaeological materials. This does not necessarily mean that it is anything exotic

[1] Waring, A. J., Jr. and Holder, Preston, A Prehistoric Ceremonial Complex in the Southeastern United States. In *American Anthropologist,* n. s., vol. 47, no. 1, January–March 1945, p. 14.

or especially rare but does suggest that it is a little out of the general run of things which have come to hand. In case of materials not previously encountered, there is little systematic procedure which one can follow." [1]

Many of the figures portrayed on the shells have scrolls emanating from their mouths. Herein, these are referred to as speech scrolls. It is possible that they actually represent smoke clouds, although no forms recognizable as pipes appear in association with them.

ENGRAVED SHELLS

PLATES XXVII, XXVIII

CAT. 18/9083. The two dancing or running human figures here depicted are joined by the entwined bodies of rattle snakes which emerge from the upper dorsal thorax of each. Except for one or two details, the figures are identical in dress and ornamentation. The belts vary, although both have the fringed or tasseled sash. One is of coursed rectangles, the other carries the Greek cross and cross-in-circle design. One figure lacks the checkered band on one upper arm. Each tine of the five pointed, crown like headdress is tipped with a globular element similar to those which combine with a long pointed unit to form the forelock ornaments found on so many of the figures. Paired pendant feathers are attached to the banded occipital hair knots, the tips of those on one figure having globular, bead like terminals.

Among the human figures on the decorated shells and gorgets in the collection, this is one of the few on which foot covering is definitely suggested. The moccasin tops run well up the lower leg, considerably above the malleolar regions, which are indicated by transverse lines. Face painting is suggested by two horizontal bands extending from the root of the nose to the temporal hair line. The ear spools have added horizontal, pointed elements extending well toward the mouth. Checkered choker collars and arm and leg bands complete both costumes. Short speech scrolls come from the mouths of both figures. Each figure carries a stone blade in one hand. That on the right holds what may be a conventionalized snake or, possibly, a tasseled and decorated corn stalk; the figure on the left appears to be dropping three oval objects which may represent corn kernels.

[1] Letter, October 24, 1945.

The markings on the snakes' bodies are individual. That coming from the left human figure has a line of demarcation between the dorsal and ventral surfaces which extends to the distal rattle. The upper body carries regularly spaced checkered bands which, toward the tail, have single transverse lines spaced evenly between the courses. The under surface shows a barred-oval marking divided by similar single lines. The other reptilian body carries a dot-and-circle design arranged axially in three more or less regular courses. The divisions between the rattles are shown on this snake, the barred-oval element being used to mark them, while the rattle segments of the other are indicated only in lateral outline.

Centered below the human figures is a coiled serpent with horns and rattles, a similar form to that shown uncoiled on CAT. 18/9309 (pls. XXXI, XXXII). It is to be noted that in unfolding the decoration, so that it might be presented as a line drawing in the flat, the snake's body appears broken in its outer coil. This is not the case, as will be seen in the photographic reproduction of the shell. The lines stemming from the mouth probably represent a forked tongue. The body decoration consists of regularly spaced barred-ovals associated with semi hourglass elements. Checkered units band the neck and the tail.

PLATES XXIX, XXX

CAT. 18/9121. A male human figure, probably in dancing pose, in an eagle costume and bird mask. The hair is dressed in a banded top knot with feather streamers at the rear and a blunt horn like ornament over the pendant forelock decoration. A perforated ear spool is shown and a similar, but larger disc just under the checkered choker collar may represent a pectoral ornament. This is a similar combination of elements to that shown on the following plate. A necklace of globular units with a shell pendant (see CAT. 18/9087, pl. LXVI) is depicted. A pointed apron or breech clout ornament, of a form often repeated on the engraved shells from this site, is suspended from a belt of coursed rectangles. A fanned tail of bound, tipped feathers, the divisions between which are shown only at the bottom, extends downward between the semiflexed legs and behind the apron. Checkered streamers, perhaps representing a sash, are also found here. Knee bands are of checkered pattern; the anklets seem to represent either feather or textile bands.

The winged arms have long pendant feathers and are decorated with alternating checkered bands and barred-circle elements except at the carpal angle where double bars in a two lined circle are found. The wings support a four lined terrace design that frames the head of the figure.

PLATES XXXI, XXXII

CAT. 18/9309. Another representation of a bird man or a dancer in eagle costume. Deterioration of the shell surface prevents full reconstruction of the head area, but the face, possibly with a bird mask, is in profile and the headdress was in crested arrangement as that shown on the following plate (CAT. 18/9125). Face painting extends downward over the jaw to the checkered choker neck band. The ear spool is unperforated, as is the disc shown pendant from the choker. A necklace of globular units with a long central drop is worn. The apron is of two rows of tipped feathers, belted at the waist and banded between courses. The wings are crudely portrayed as compared with those on the figure on the preceding plate. The streamer lines emerging from the back of the head are similar to the arrangement on CAT. 18/9127 (pls. XXXV, XXXVI). Those stemming from the mouth area may represent a speech scroll. The upturned unit above these, distinguished by the presence of short dashes, may be the beak of the mask. A horned serpent with rattles occupies the curve of the crest of the shell. The snake body is divided axially by a line extending from its mouth area through the rattles. One half of the body shows barred-circle markings spaced between angled lines; the other portion has checkered courses dividing larger areas in which bars alone are found. The neck and tail areas carry similar checkered bands.

PLATES XXXIII, XXXIV

CAT. 18/9125. A bird-man form with considerably fewer human features than those found on the shells already described. The crown of the head is similar in form to that shown on the bi-profiled figure, CAT. 18/9122 (pls. XXXVII, XXXVIII). The stylized human ear with perforated spool ornament is represented. A long speech scroll comes from the masked mouth. Three of the streamer lines emerging from the cranial areas are poined to form a banded and fringed or tasseled terminal. A single segmented band circles the neck

and two checkered bands mark the legs which terminate in bird claws, the one remaining intact being tripartite. Triangle decorations occur down the chest and over the abdomen terminating at a two banded belt carrying irregularly spaced chevron markings. A break in the shell prevents a determination of the terminal arrangement of the fanned tail. The wing feathers are shown only in outline.

PLATES XXXV, XXXVI

CAT. 18/9127. A male human figure in dancing pose. The headdress has a single superior horn like projection and shows larger lateral elements that may represent buffalo horns. The forked eye, so common to material from the Spiro site, is here shown in one of its variations. Teeth are shown, not a usual feature on the shells in this collection. A spool ornament is found in the ear not obliterated by shell disintegration. A broad collar seems to be formed of a solid foundation, possibly representing hide, with five projections, from each of which is a pendant composed of a globular unit and a terminal that appears to be a representation of a bear tooth. One such tooth covered with copper exists in the collection (CAT. 18/6554, pl. LXXXV) as well as carved wooden imitations (pl. LXXXI). Over the upper area of the main body of the collar several segmented courses, possibly representing beads, support five globular drops regularly spaced around the yoke. Streamers are shown at the neck area. The belt has a double chevron design, and the bifurcated sash has fringed ends. A breech clout ornament is represented, as are wrist and knee bands. Emerging from the belt area at the figure's right side is a fan or spud shaped object which, were it complete, would, except for the tassels, probably appear as that in the left hand of the figure on CAT. 18/9310 (pls. XLIII, XLIV).

The right hand of the figure holds an elongated pear shaped object suspended from a six pointed rosette. Similar forms are found on several of the shells in this collection, some being held in the hand, some suspended from stalk or staff like forms or from snakes' mouths. They may represent feather ornaments, as the broken dash lines on most of them have been employed to suggest feather texture on costume features where such material might be expected. However, their association with staffs or stalks may class them as schematized corn tassels. That shown on CAT. 18/9310

shows a fringed terminal. Deterioration of the shell surface has obliterated the three stranded object or objects held in the figure's left hand.

PLATES XXXVII, XXXVIII

CAT. 18/9122. A figure with its head in double profile. The eyes have forked drops which cross opposite the mouth areas. Long speech scrolls emanate from each mouth. Large forelock ornaments are present and are composed of two globular elements and a triangular unit from which is suspended a long terminal segment. It is possible that the triangular form may be represented by the wooden object, CAT. 18/9323 (pl. LXXXV). The choker collar joins a breast ornament roughly of a shape similar to the stylized apron heretofore mentioned. The girdle or deep belt here shown is similar in arrangement to the collar on CAT. 18/9127 (pls. XXXV, XXXVI). The same fret arrangement is found together with the combined globular and tooth like pendants. The actual belt line carries two courses of segments, possibly representing beads, with a chevron design just below. The breech clout extending from beneath the central girdle projection is decorated with three barred-oval units. Knee and ankle bands are shown, those at the ankles being unsegmented. From the belt a double billed bird head with a single eye and an exaggerated crest is shown. This may represent one of the hafted copper axes shown on pls. LXX, LXXI.

Each hand of the figure grasps a snake body. One is decorated with triple band elements alternated with bars occuring in the blank areas. The eye of this snake is marked by a small drilling and a mouth is shown. The other snake body carries four blank rectangular medallions connected by a single line running medially along the body and terminating at a three course neck band. The head area of this snake is not detailed. From the mouth of each snake is suspended the pear shaped object found on several of the shells; and another such form is depicted, unattached but parallel to one snake body. Although the shell is broken, there seems little doubt but that the tails cross each other under the feet of the human figure.

PLATES XXXIX, XL

CAT. 18/9118. Although about half of this shell is missing, nevertheless the engraving presents several features of considerable

interest. It is the only one in the collection, on which two or more figures are shown, that suggests that individuals of different groups might be portrayed. The headdress of the larger figure to the right is dissimilar to those on the two heads facing it. On these we find a stiff feather crown, or, perhaps, a roach. From this a broad streamer falls over the occiput. Perforated ear spools occur and forelock ornaments are shown on all the figures, although that on the larger has an ovoid proximal segment instead of the two globular units shown on the other heads. The forked eye, too, is lacking on the main figure, on which is shown a beaded choker with a pendant circular breast ornament. Speech scrolls are present. A banded and strung bow is held by the larger figure and behind him is an object which may represent a form of ceremonial mace or, although no nock is present, the feathered butt of an arrow. Compare this with the object shown on CAT. 18/9074 (pl. LVIII, *d*.)

PLATES XLI, XLII

CAT. 18/9123. Two figures similarly costumed face each other on either side of a forked, banded staff or stalk which may represent the corn plant. Both figures have three unit forelock ornaments and ear spools, one of which has a long, curved pendant element. Face painting is represented on one figure by lines running downward from the eye to the jaw with a right angle at their center backward to the ear. Large tripartite speech scrolls emanate from either mouth. Semicircular ornaments are shown at both neck lines. Unsegmented knee and ankle bands are depicted and the one belt is decorated with parallel angled lines. From each belt protrudes a double-crested bird's head, possibly representing halfted copper axes, as suggested in the description of CAT. 18/9122 (pls. XXXVII, XXXVIII). From the lower hands of both figures are suspended the forms that may suggest corn tassels.

PLATES XLIII, XLIV

CAT. 18/9310. Whether this engraving portrays an anthropomorphized cat figure or a dancing human wearing an animal mask is conjectural. The animal head carries three ear like projections. The eye is represented by three concentric circles with a central dot. Nostrils are shown and the teeth are exposed. A long, bifurcated speech scroll is depicted. Segmented bands circle the neck from

which is suspended a triangular breast ornament. The belt, from which fringed sashes fall on either side of the body, carries three Greek crosses with central dots, as decoration. A fringed element, unattached to the body, is found under the semi extended left arm. Bands, segmented at the knees and plain at the ankles, are shown. In the figure's right hand is a stalk like object with a bifurcated tip similar to the form shown on CAT. 18/9123 (pls. XLI, XLII). From this is suspended a tasseled or fringed element the body of which is decorated with a single rectangle-and-bar unit. In the other hand, the figure holds a spud or baton like object segmented around its arced periphery and tasseled. Although breaks and deterioration in the shell surface have obliterated the detail, it would seem that the staff handle curved toward the figure's feet and that it, too, had a fringed element at its tip.

PLATES XLV, XLVI

CAT. 18/9082. A serpent design with fleshed bone elements in the spaces between its loose coils. The head, although partly obliterated through breakage, shows a somewhat human form of lipped mouth, a weeping or forked eye arrangement and a crest with a plume terminal. The reptilian body is for the greater part cross-hatched with three groups of three banded lozenge shaped units arranged at intervals. What appeared to be banded feathers are attached to the body at two points.

PLATES XLVII, XLVIII

CAT. 18/9126. A more elaborate coiled serpent and plume engraving. Destruction of the shell has obliterated most of the head area. The three pronged, forked eye, a form illustrated by Holmes [1] from Georgia, remains complete. The body shows a definite dorsal area, largely cross-hatched, and a ventral surface blank except for heavy broad L shaped markings. At the neck area a wide transverse engraved band is set between two blank stripes and at three points along the body this arrangement, except at a diagonal axis, is repeated. Flattened heart shaped rattles are shown. The feathers are in a fanned tail arrangement depicted with considerable detail. In one of the spaces between the coils of the serpent body is a cross-in-

[1] Holmes, W. H. Aboriginal pottery of the Eastern United States. *B.A.E. 20th Annual Report*, Washington, 1903, pl. CXIX, *a*.

double-circle element. A forked eye occurs in the space between the cross-hatched cone and feathered or fringed units that combine to form a part of the design below the snake's body.

PLATES XLIX, L

CAT. 18/9124. Four cat figures are arranged around a central cross-in-circle element. Ears are shown on each animal, teeth are represented and either a tongue or a small speech scroll is present. A variation of the forked eye is shown, the projection extending to the choker collar. Segmented ankle bands are shown. The animal tails are raised in a returning curve over the backs of the creatures and are irregularly spaced by transverse lines. Bar-in-oval units are employed to depict either anal or vaginal orifices and similar combinations are found on the mid bodies of the two cats remaining complete. The feet of the creatures are birds claws.

PLATES LI, LII

CAT. 18/9308. The body of the fish is cross hatched from a double banding at the neck to a checkered area at the caudal peduncle. Two dorsal, a pectoral and an anal fin are shown. Lengthwise through the body a scroll of three parallel lines, with a circle-and-dot central decoration is depicted. The arrangement of shafts seems to represent them piercing the fish. The suggestion is offered, however, that the broad flanged objects from which the narrower shafts extend, may be representations of throwing sticks. In this connection the shafts all project from the expanded curved end of the object and in front of the tangs which might be finger grips. In the one object remaining complete, where the projectile is directed away from the fish, the finished end of the shaft is shown extending but slightly beyond the broader object. To give substantiation to this premise, it will be noted, from the one directed outward from the fish's head, that the engraver found no difficulty in the accurate representation of a hafted projectile point. If these are representations of the feathered, unnocked butts of projectiles imbedded in the fish body, it will be noted that the feather expansions are reversed.

PLATES LIII, LIV

CAT. 18/9120. A semi-conventionalized tree with exposed roots. The natural breadths of the shell necessitated the engraving to be

reversed in order to accommodate the lower and wider branches. One half of the tree shows an over-all series of short dashes giving the impression, which is heightened by the general outline and arrangement of branches, that one of the conifer groups is represented. On the tips of four of the branches crested birds are perched, that on the uppermost being entirely obliterated by breakage except for two segments of its tail.

PLATES LV, LVI

CAT. 18/9119. A repetitive forked eye motif in horizontal arrangement. The two upper courses of these elements are divided by a broad band of double oval units and the lower courses by three horizontal lines.

FRAGMENTS

In the collections are a number of fragments of engraved shells some of which are shown on the following plates. Because the complete remaining design may be seen in the photographic reproductions, drawings of these are deemed unnecessary. They all carry the same catalogue number, 18/9074.

Enough of the figure remains on the largest of these fragments (pl. LVII) to show a repetition of previously described and illustrated costume features, the triangular breast ornament, the belt, the breech clout ornamented with a barred rectangle and the knee and ankle bands. At the left of the figure is depicted the problematical form that may represent a corn tassel.

PLATE LVIII

B shows the snake and plume combination not unlike CAT. 18/9126 (pls. XLVII, XLVIII) in arrangement and style. The claws shown on *a* are crustacean and probably represent those of crawfish. *C* on this plate repeats the crested bird head with inlaid eyes at the figure's belt line and shows knee bands on the one leg shown in its whole upper length. The photograph of the remaining specimen, *d*, illustrated on this plate, has been retouched to show the lines actually present but which are incised so lightly and largely void of pigment that they would not otherwise be seen in the illustration. Completed thus, the object comes to resemble in general form that shown behind the

figure on CAT. 18/9118 (pls. XXXIX, XL) and may be the feathered butt of an arrowshaft, unnocked, to which perforated discs are attached, or a mace form.

GORGETS

Some twenty-five or thirty shell gorgets of various types are said to have come from one excavation or another of the mound. Cameo carving, cut design, engraving, and combinations of the two latter techniques are all represented in this collection. The larger ones carry the curve of the shell wall from which they were fashioned.

PLATE LIX

CAT. 18/9084. A roughly circular cameo gorget with five human heads carved on the face. Two drilled holes for inspension exist near the upper rim. The faces depicted are all basically similar, the ears being formed in the same manner to those found on the engraved shells. The forked eye appears bilaterally on all faces, there being a straight prong on one eye of each face and a waved fork on the other. The gorget has parallel lines rimming its periphery and is divided into quarters by three straight parallel lines radiating from the central head.

PLATE LX

CAT. 18/9085. A somewhat oval gorget with a scalloped rim. From the positioning of the suspension drillings it might well be that the engraved figure may be recumbent with the head retracted and the throat exposed, possibly representing a sacrificial rite. Two wrinkles in the rear neck realistically portray the head being drawn backwards. Many who have seen this gorget are of the opinion that the representation is of a running figure and that the suspension holes are at the side perhaps for attachment to a staff.

The forelock ornament consists of one globular unit and a long drop. Face painting is shown around the eye and over the forehead and temporal areas, extending in a band rearward from the mouth to the lobe of the ear, which, incidentally, contains a circular ear ornament, and upon the exposed area of the throat. The hair, decorated at the scalp area, is held at full length from the occiput by the figure's left hand. Arms and legs have the banded areas probably

representing beads. The shoulders are covered with scalloped pads decorated with concentric circles one course of which is shown segmented. Covering either elbow are reversed forked eye units. A large circular perforated breast ornament has winged expansions at either side and from its lower rim a curved element extends downward to enter the belt or sash over the left hip. This belt is composed of four courses of segmented units with a crook-like extension to the right and a circular ornament and a fringed sash to the left. A triangular breech clout is indicated, it having no pendant ornamentation. The ankles are banded, and moccasins with fringed ankle flaps are shown.

PLATES LXI, LXII

CAT. 18/9086. A gorget combining cut and incised designs. The main central figure wears a perforated ear ornament with an attached up-curving element. Face painting is indicated by two bands extending from the ear across the face to the mouth. A long pendant forelock ornament is present. Only the left arm remains fully intact. That forearm is raised and the hand grasps a snake like object which extends downward on either side of the gorget to the toe of each foot. This serpentine form, incidentally, has neither head nor rattles that might actually identify it as a snake. The figure's legs are spread and partly flexed. The whole body of the main figure is covered from just below the shoulders with an oval scalloped garment which has a rectangular apron like extension falling between the spread knees. In the central area the full pelt of a long tailed animal, possibly a fox, is suspended by its neck so that the head falls forward. Two similar pelts are suspended by their snouts from the serpentine form just outside the central figure's hands. These pelts show banded decorations at the shoulders, in the central animal, and at the loins and on fore and rear legs and tails on all the animals. In addition a perforated circular object occurs at the bases of the tails of two of the pelts.

The exposed surfaces of both forearms have sun symbols just at the elbow areas. Similar markings are found at the semi flexed knees and on the calf of either leg. Knee and ankle bands are shown. The foot areas are decorated with cross- or bar-in-double-circle units. It may be possible that the bands above the ankle areas portray the tops of moccasins.

Reversing the specimen, a human head is seen emerging from the apron edge of the main central figure. A forelock ornament, showing a globular element with a long terminal, is present. From a banded occipital hair knot an upswung ornament rises behind the head to terminate at the rim of the gorget. The similar one shown on the main figure is in plaster restoration. The banding at the hair knot remains intact and seemed to justify a belief that the same hair arrangement and ornamentation occurred on both heads. A perforated circular ear spool with a pendant ornament is present. The banded objects which angle upward and outward from the knees of the central figure may well be the arms of the reversed body extending to or behind the two suspended pelts.

PLATE LXIII

CAT. 18/7913. A circular gorget with a representation of a chunke player in cut and engraved design. The right hand of the figure grasps the discoidal and the torso is bent forward with the legs spread as if in the act of casting the stone. The forked eye is present as is the usual form of ear spool. A fringed neck ornament with a long feather like pendant is shown. There is a multibanded broad girdle with a sash dropping between the legs. Over the figure's right hip the heart shaped apron,[1] found on many of the figures, is portrayed. Emerging from the upper girdle edge are what appear to be folds of a gathered material. These are draped, as well, over the flexed left leg and form a breech clout arrangement under the sash. Wrist and knee bands are shown. One of the two elongated rectangular objects merging into the upper side rim of the gorget may represent a part of a headdress. As the shell rim was broken, it is difficult to say whether its mate is also a drop from some headdress extension or part of some implement held in the figure's left hand.[1]

PLATE LXIV

CAT. 18/7915. A small circular gorget with five drilled perforations and partly cut designs. The bird engraved here has a round, heavy body, a long, arched neck and a curved beak. One leg is shown with a posterior spur. From the barred arrangement of the

[1] Compare with: Holmes, W. H. Shell ornaments from Kentucky and Mexico. Smithsonian *Miscellaneous Collections,* vol. 45, Washington, 1903, pl. XXIX.

expanded tail area and the comb falling forward from the head, it is believed that the wild turkey is represented. One wing is shown extended, the parallel horizontal lines depicting feathers. It would seem that the gorget was not finished, as some of the graven lines appear to be markings for further cut-outs not completed.

CAT. 18/7914. An oval gorget with thirteen perforations. The engraved design is a crude cross from the center of which volutes form a swastika figure, the tips of which terminate each in roughly segmented oval units, possibly representing ears of corn. The arrangement of the perforations is not as haphazard as would first appear. The central one is ringed by a circle; two pair occur balanced at different quarters of the rim; and each of the remaining four pair are found at the bases of the segmented elements. As related to the central drilling, these latter, too, assume a swastika form.

PLATE LXV

CAT. 18/7897. A figure of a man. The headdress has a central domed crest and lateral projections, possibly representing buffalo horns. The dome is drilled transversely as if for suspension. Ear spools are shown, as are wrist and knee bands. The whole central body is covered by a circular object on which a cross occurs within a segmented rim. Possibly this represents a shield. A triangular breech clout is indicated by lines extended from the vertical cross element downward and between the legs. The figure may once have had feet. Deterioration of the shell, however, was complete in these areas and the stumps shown are in plaster restoration, as are one hand and one horn of the headdress.

PENDANTS

PLATE LXVI

CAT. 18/9087. Two pendants formed from the columellae of shells. This type of ornament appears on two of the engraved shells (pls. XXIX, XXXI). They are perforated for suspension at the pointed ends.

CAT. 18/9327. A fragment of flat pendant with annular parallel incised lines, some with vertical divisions, possibly representing a snake rattle. There is an incised meander at the bottom of this area. This ornament was never completed. About one half of the lower edge has been formed into three rounded projections, an incised line

running transversely at their bases. It is presumed that this scalloping was to have run across the entire lower border, one part of which is now merely an area of unfinished broken shell.

CAT. 20/720. A highly polished triangular breast ornament retaining a considerable portion of the natural curve of the shell. All tips are perforated.

WORKED SHELLS

PLATE LXVII

CAT. 18/9081. Fragment of cassis shell with ten drillings along a complete flange and three along a shorter broken flange.

CAT. 18/9080. Fragment of cassis shell carved into evenly spaced scallops along one edge. Several of these have suffered breakage or disintegration.

BEADS AND PENDANTS

PLATE LXVIII

CAT. 20/726, *a*. Two beads of hourglass form. Length ¾ in., greatest diameter ½ in.

CAT. 20/721, *b*. A flat pendant perforated for suspension. Greatest length ⅝ in.

CAT. 20/725, *c*. A barrel shaped bead grooved at either end and flattened on two side surfaces. Length ¾ in.

CAT. 20/724, *d*. Two univalve beads drilled through their crests. No other working is in evidence. Lengths 1½, 1⅜ in.

CAT. 20/732, *e*. Pear shaped beads. There are forty-nine of these in total. Most are flattened on their broad surfaces, a few remaining in the full round. The drilling of this group is from the top to one side surface, only the latter perforation being visible in the illustration. Their average length is ¾ in.

CAT. 20/722, *f*. A grooved and pointed pendant formed from a shell columella. Length 3⅞ in.

CAT. 20/733, *g*. Fifteen flattened globular beads averaging ⅝ in. in length. There are also twenty-eight smaller beads of this form (CAT. 20/735) not illustrated.

CAT. 20/734, *h*. Thirty-nine large disc beads with an average diameter of ⅞ in. and an average thickness of 7/16 in.

CAT. 20/7116 (MAF.), *i*. Fifty spindle shaped beads flattened at the centers of the broad surfaces with ends in the full round. Lengths vary from 1⅛ in. to 1⅝ in. Some of the beads are highly polished.

CAT. 20/727, *j*. A cylindrical bead with a length of 1¼ in.

CAT. 20/730, *k*. Flattened spindle shaped bead in the full round at one end. Length 2⅛ in.

CAT. 20/731, *l*. Nine long barrel shaped beads ranging in length from 1 in. to 2¾ in.

CAT. 18/9078, *m*. Three barrel shaped beads, all highly polished. Length of specimen illustrated, ¾ in.

CAT. 18/9313, *n*. Nine small cylindrical beads, all highly polished. Average length, ½ in. Five are shown, additionally, on the following plate (*g*).

PLATE LXIX

CAT. 18/9316, *a*. Fragment of large globular bead. Thickness, ¾ in.

CAT. 18/9315, *b*. Three flattened biconoidal beads averaging ¾ in. in diameter and ⅜ in. in thickness.

CAT. 18/9314, *c*. Five cylindrical beads, some slightly curved with the drilling following the arc. They range in length from 1⅛ to 2⅛ in.

CAT. 18/9079, *d*. Curved cylindrical bead. Length 1⅞ in.

CAT. 18/9076, *e*. Five hourglass form beads, some flattened at ends. Length range, 7/16 to 1⅛ in.

CAT. 18/9075, *f*. Six cylindrical beads, grooved on both ends. Length range, ⅜ in. to ½ in.

CAT. 18/9313, *g*. For description see preceding plate, (*n*).

Additional groups of shell beads not illustrated include small univalves drilled at their crests, but otherwise unworked (CAT. 18/7083); small, well polished cylindrical beads (CAT. 18/9320, 20/728); very small cylindrical beads (CAT. 18/9321, 20/729, 20/7117 MAF.); thin, well fashioned disc beads (CAT. 19/8085, 20/736); slightly thicker discs (CAT. 20/737); small, thick rings (CAT. 18/6498, 18/9318, 18/9319, 20/7119 MAF.); and small thin rings (CAT. 20/739).

Other beads not of shell include seventy-two drilled fresh water pearls, 69 of which are in the Maffenbeier Collection (CAT. 20/7120); seeds of the Ozark false gromwell (*Onosmodium subsetosum*) (CAT. 18/7082); and one of pottery (CAT. 18/6425).

OBJECTS OF COPPER

AXE CACHE

PLATES LXX, LXXI

CAT. 18/9077. A cache of copper axes hafted in carved wooden handles. There are sixteen such specimens practically intact; six having only fragmentary handles; three unhafted axe blades; and one complete and two fragmentary handles minus the blades. The whole was enclosed in a woven matting bag or container made from pawpaw (*Assimina triloba*). Within the bundle were five small fragments of conch shell, some with indistinguishable engraved decoration, none of which is illustrated, and a mass of braided fox hair cord. Fragments of a vegetal cordage may indicate that the bundle was securely tied at one time.

The wooden handles are warped and twisted, apparently from a long period under heavy pressure. Their length range is now from 1 ft. 2 in. to 1 ft. 8 in. Those remaining complete all have a round or slot shaped eyelet carved at the handle butt. The blade is inserted in the handle at the rear of the carved head of a bird, probably the crested woodpecker, extending through its wide open beak. A well defined tongue has been carefully portrayed. All the bird heads have bilateral sockets for eyes and in many instances the disc shell inlays for these countersinkings still remain in place. These features are shown on (pl. LXXI).

The blades are flat and, for the most part, taper gradually from the bit to the hafted butt. Several have slightly expanded and arced edges, as found on the stone chisel, CAT. 20/762 (pl. XXII, *d*.) They vary in length from 4¾ in. to 16 in., and in width from 1⅛ in. to 3 in. They vary in thickness from ⅛ in. to ¼ in.

GROOVED AXES

PLATE LXXII

CAT. 20/7115 (MAF.). A three-quarter grooved axe head of solid copper.

CAT. 20/7114 (MAF.). A flat grooved axe still covered with matting fragments of canebrake (*Arundinaria tecta*), probably from the container in which it was found. The cutting edge does not possess the sharpness as that of its companion piece on the plate.

SHEET COPPER

PLATE LXXIII

CAT. 20/705, 20/706. Two hair ornaments in the form of plumes, with wooden pegs for attachment. There is an extra piece of sheet copper riveted on the rear surface of the base of the plume, bent at its center to form a socket for the peg.

Additionally, a fragment of a plume with a bone peg attached in the same manner exists in the collection (CAT. 20/707), as well as one bone and two wooden pegs (CAT. 20/708).

PLATE LXXIV

CAT. 18/9332. A fragment of sheet copper with embossed design. The piece has been badly crushed but sufficient of the detail remains to recognize the stylized pointed and fringed apron or breech clout ornament and a hand holding a severed head suspended by its hair. On the apron there is a rectangular ornament or medallion with pendant beads similar to the arrangement found on the engraved bird-man figure, CAT. 18/9121 (pls. XXIX, XXX). A line of rivets joining two sheets is clearly shown in the illustration.

PLATE LXXV

CAT. 20/699. Fragment of sheet copper on which a male head in profile is embossed. The eye is shown as a raised button and only the tongue is depicted in the partly open mouth. The ear lobe, no longer present due to the broken condition of the plate, held a circular ear spool. Hair is clearly shown in pompadour arrangement and a forelock ornament consisting of two spindle shaped and one globular units with a pendant tassel is present. The lines running from the forehead, above the eye, and the nose bridge, below it, to the temporal hair line and ear, probably represent a broad band of paint.

CAT. 20/700. Another profile head embossed on sheet copper. The forked eye is pierced and upper teeth are shown. The hair appears to be roached and there is a rosette ornament over the ear. An ear spool with two spindle shaped drops and a feather or fringed terminal is shown. Two similar units and part of a third comprise the forelock ornament. It would seem that the full width of this sheet is intact, as there is a perforation at one border, just opposite

the ear; one at the upper left corner; and a broken one half way down that edge of the plate.

PLATE LXXVI

CAT. 20/701. A fragment of embossed copper sheet showing a central perforation within five concentric circles surrounded with four regularly spaced forked eye figures. The eyes are not perforated but are raised buttons within a diamond element.

The collection also has eight small fragments of embossed sheet copper (CAT. 18/7080, 6 specimens; 18/7898 and 20/702) which carry segments of circular designs. Also seven bipointed pins, two being 1 ft. 4 in., one 1 ft. 2 in., one 1 ft. and two 9¼ in. in length; and one, 1 ft. 1 in. long, which has been bent in the form of a staple. None of these latter objects is illustrated.

OBJECTS OF WOOD

No identification has been attempted of the wood from which the illustrated specimens were made. In the main there seems but little doubt that most, if not all, of the objects are of cedar. Risking damage to the fragile specimens in the endeavor to procure a piece of sufficient size for proper analysis, was not considered advisable.

MASKS

PLATE LXXVII

CAT. 18/9306. A human mask with horns probably representing those of a deer. The right side of the face is warped from moisture and pressure but remains practically intact. Eyes and mouth are represented by shell inlays, that of the mouth having a drilled center perforation. Ear spools are represented by shallow socketed areas which may have once contained inlays. The rear flange is shown protruding from the back of the lobes. The rear of the mask has been hollowed to a depth of ¾ in. and has an undercut finished rim following the oval of the face. The carved surfaces are smooth and polished and show no tool marks.

PLATE LXXVIII

CAT. 18/9117. Miniature masks. In some of these the shell inlays representing eyes and mouth remain intact; in others, none re-

mains although all show traces of having been similarly inlaid. The collection contains eight of these in total, seven carry the above catalogue number and one, in the Maffenbeier Collection, is 20/7110. Three of the specimens are badly distorted by warping. Most of them show contact with copper but none seems to have had any overlay of that metal.

RATTLE

PLATE LXXIX

CAT. 18/9307. A rattle in the form of a turtle which has been covered with a thin copper sheathing. Eyes and mouth are present. The front limbs resemble flippers rather than legs, the rear limbs being missing. The central crest of the carapace has three rows of well defined plates rising from ⅛ in. to ¼ in. above the main shell level. The tail is segmented and has a ventral medial ridge. The plastron of the specimen is covered by a broken copper plate to which fragments of a woven cane matting are adhered. Such small areas of the undersurface as are visible show no evidence of carving.

BLADES

PLATE LXXX

CAT. 18/9333; 20/704; 20/703. Three objects of wood shaped to simulate chipped stone blades, one face only of which is covered with a thin copper sheathing. On each, about a third way up from the blunter end, the copper does not cover the uncarved wood. Instead this area has been covered with wrappings of cordage, the remnants of which are covered with red paint. On CAT. 18/9333, this area has four perforations, two of which contain fragments of cordage. This specimen is carved similarly to CAT. 20/703, there being a series of circular countersinkings from the edges leaving ridges between these areas and along the central axis of the object. The copper was pressed well down to make these surface irregularities well evident. CAT. 20/704 has a leaf vein carving and its copper covering is somewhat heavier than that found on the other two specimens. In all cases, the reverse, where the wood is exposed, is smoothed but undecorated. The cord wrappings went entirely around the objects.

HEADDRESS BUNDLE

PLATES LXXXI, LXXXII

CAT. 18/9312, A–G. This group of specimens comprised what is supposed to have been a headdress bundle. It contained (A) a rather heavy copper plate, (B) several large fragments of cane container; (C) two fragments of unembossed sheet copper showing perforation and riveting; (D) fragment of a coiled-weave bag, mentioned under Textiles and illustrated on pl. LXXXIX; (E) fragments of tanned hide, possibly from a moccasin; (F) fragments of hide and bark with wrapped thongs; (G) fragments of a headdress of hide and bark with wooden pendants carved to represent bear teeth. Only A, B, D and G are illustrated.

CAT. 18/9312, G. From this principal fragment of what is thought to have been a headdress, the possible original arrangement of the 4 in. band, curving across the forehead from ear to ear, is suggested on pl. LXXXII. A strip of hide is fastened along the upper edge of the bark and extends downward for about a third of the width of the whole band. This is painted red and is decorated with wrapped braids, both core and wrapping of which are muskrat hair. Four wooden pendants carved to represent bear teeth remain in place while the fragment and another was found loose in the container. Quite probably all these were sheathed in copper, fragments of a thin sheeting of this metal remaining on two of the pendants.

CAT. 18/9312, A, B. The cane container (*Arundinaria tecta*) appears to have been rectangular in form. It rested on a fairly thick copper plate approximately 6 x 8 in. which is so corroded as to make impossible any chance to determine if it was decorated in any way.

CANE COMB

PLATE LXXXIII

CAT. 18/9331. A comb formed from bent splints of cane (*Arundinaria tecta*) bound with several courses of a twisted vegetable fiber cordage. The specimen is so strongly adhered to a plate of badly corroded copper and is so fragile that no attempt has been made to identify the binding strands for fear of injury.

BEAD BUNDLE

PLATE LXXXIV

CAT. 18/9311. A bundle of forty-four elliptical wooden beads, found with fragments of a loosely woven textile, and a deposit of thin fragments of corroded copper, all in a broken cane container made from splints of *Arundinaria tecta.*

Most of the beads are 2⅞ in. in length, although a few are longer, one being 4⅜ in. They average 1 in. in diameter at the center and ½ in. at the ends. The thin copper fragments found in the container may be the remnants of an original copper overlay on the beads, as some show evidence of once having been so encased. However, many do not. The textile, of diagonal weave, is found in badly decayed broken bands, varying in width from 1½ in. to 3 in. and are dyed black. Identification of the material is difficult, but it is thought to be buffalo hair.

One interesting point in connection with the wooden beads is to be emphasized. Although they are drilled throughout they do not appear to have been strung in the usual manner. In several of them there exists in one end a length of cane splint (not positively identified, but thought to be *Arundinaria tecta*) about ⅛ in. wide which is plugged into the drilling by a wrapped wad of fabric. It would appear that by these splints the beads were connected in series.

MISCELLANEOUS WOODEN OBJECTS

PLATE LXXXV

CAT. 18/9115. A pendant, carved to represent a snake rattle and drilled for suspension.

CAT. 18/6554. A bear's tooth pendant, drilled for suspension and covered with a thin sheeting of copper.

CAT. 18/9114. A tapered cylindrical bead originally with six shell inlays, four of which remain. The specimen is now considerably flattened on one side, probably from pressure, so that the drilling is closed through its central portion.

CAT. 18/9323. A hollow cone shaped object with a perforation through the apex and seven drillings around the slight ridge which rims the larger opening.

PLATE LXXXVI

CAT. 18/9324, *a*. A biconvex ear spool, each flange being of the same diameter.

CAT. 18/9325, *b*. A wooden ear spool the face of which is concave. The rear flange is somewhat broken.

CAT. 18/9326, *c*. Fragment of an ear spool with a rounded face and rear flange entirely missing.

CAT. 18/7077, *d*. Fragment of the front surface of what appears to have been an ear spool. There is no remaining rear flange. The whole face is occupied by a Greek cross with a slight rim border showing between its arms.

CAT. 18/7078, *e*. Fragment of ear spool, its face being decorated with groovings forming concentric rings.

POTTERY

PLATE LXXXVII

CAT. 20/742. A tripodal bottle with hollow legs expanding into flattened globular bases, varying slightly in diameter but each approximating 3¼ in. The ware is light brown with several smudgings from firing. Remnants of what appears to have originally been a black paint occur on some surfaces. No incised decoration is present.

There is some question as to whether this bottle is actually a Spiro piece, as no pottery fragments among the sherd collections, seeming to suggest the existence of tripodal forms, have been recognized. Mr. Kenneth G. Orr, who was engaged in the excavations made by the University of Oklahoma, has seen the piece and comments on it as follows:

> "Although excavations by the University of Oklahoma did not reveal presence of tripodal bottle form either at the Spiro Mounds or in the vicinity, such an artifact would not be out of place at this site. Earlier commercial digs may have unearthed a tripodal bottle. This conclusion is based on evidence showing presence (rare) of tripodal bottle in sites which bear a close cultural relationship to Spiro . . . the ware type of your specimen is (as I recall) completely at home at Spiro." [1]

CAT. 20/741. A bottle of red ware of much coarser finish than its companion piece on this plate. No incised decoration is present although fire smudges are found.

[1] Letter, May 12, 1945.

The only other pottery specimens in the collection are a cylindrical bead (CAT. 18/6425) not illustrated, which has a thickness of ½ in. and a diameter of ¾ in.; and a spindle whorl made from an incised sherd illustrated on pl. XXIV, *g*.

TEXTILES

The few textile pieces in our collection came to us in semi-moist, compressed masses caked in dirt. It is evident that the early excavators considered them as rubbish and that careful removal would have saved many more intact units.

In 1936 Mr. William C. Orchard, then of our staff, made as complete examination of these fragments as their condition permitted. The descriptions of the weaves are largely his and the drawings of the detail of techniques were made from string models of his construction.

PLATE LXXXVIII

CAT. 18/9351. Three fragments of a plain twined weave. The weft is a spun rabbit hair and the warp is a twisted two-strand string of vegetable fiber. This has practically disappeared through decay and no positive identification could be made of the minute remnants, but it is probably *Arundinaria tecta*. The apertures through the weft strands once occupied by the warp elements are clearly seen. Red predominates in the color scheme with pointed designs in dull yellow or buff outlined in black. The arrangement of the center portion of the largest fragment illustrated is a broad band of yellow striped with black and red which lies between two narrower bands of red, outlined in black.

PLATE LXXXIX

CAT. 18/9312 D. Fragments of textiles of spiral, twined weave found in the so-called headdress bundle (see pl. LXXXI). The warp strands radiate from a center, a technique met in basket making. The weave is very fine. The warp strands, which were of vegetable fiber, have entirely disappeared, but were about 1/16 in. apart. This is shown by openings in the twined weft originally holding them. The weft is of rabbit fur and is so fragile that complete study of the weave, which occurs in bands of light and dark brown and black, is impracticable.

PLATE XC

CAT. 18/9350. Several fragments of an open twined weave with warp and weft elements of two spun threads of the same size. The material is rabbit fur dyed red. The weft or twining units are shown in the enlarged detailed drawing enclosing two of the warp strands at each crossing. At one side of the drawing, the weave is shown loosened so that the arrangement of the weaving strands may be more closely followed. These fragments have been under some pressure so that they are considerably matted.

PLATE XCI

CAT. 18/7899. A textile fragment found closely adhered to a thin piece of worked copper. The material is *Amsonia ciliata*. The weave is open twining, not an unusual technique but remarkable for its fineness, with little room for finger manipulation of the strands. The weft elements across the warp are a scant 1/16 in. apart. The detailed drawing shows that two single strands are occasionally twisted together and treated as one unit in the twining.

PLATE XCII

CAT. 18/9344. Fragments of a coiled spiral weave, although not so fine, possibly of a technique similar to CAT. 18/9312 D (pl. LXXXIX). The largest piece illustrated clearly shows the warp spaces in the twining left through the complete disintegration of that vegetal element. The colors are yellow or buff and two tones of brown. These specimens, as well as CAT. 18/9312 D, are probably parts of bags.

PLATE XCIII

CAT. 18/9338, *a*. Fringe elements formed of cores of *Assimina triloba* with wrappings of fox hair, both of natural color and dyed red.

CAT. 18/9342, *b*. Possibly fringe elements with cores of *Assimina tribola* and wrappings of undyed rabbit fur.

CAT. 18/9346, *c*. A braided cord of rabbit fur dyed red with a knot at one end.

CAT. 18/9336, *d*. Fringe elements with cores tentatively identified as *Arundinaria tecta* with wrappings of small white feathers.

CAT. 18/9341, *e*. Fringe elements with cores of rabbit fur with wrappings of muskrat hair dyed red.

PLATE XCIV

CAT. 18/9337, *a*. Fringe elements with cores of *Arundinaria tecta* and wrappings of fox hair, natural color and dyed red and black.

CAT. 18/9344, *b*. Strands from the group illustrated on pl. XCII.

CAT. 18/9345, *c*. Braided cords of rabbit fur.

CAT. 18/9340, *d*. Probably fringe elements with cores of double strands of *Arundinaria tecta* and wrappings of brown feathers.

CAT. 18/9339, *e*. Possibly fringe elements both cores and wrappings of which are fox hair. The wrappings are dyed red and black.

In addition to the foregoing illustrated specimens the collection contains fragments of matting of *Arundinaria tecta* (CAT. 18/7079); a mass of human hair (CAT. 18/9343); and twisted cords of *Arundinaria tecta* (CAT. 18/9347), of rabbit fur dyed red (CAT. 18/9348), of fox hair dyed red (CAT. 18/9349), and a fragment of weaving also of fox hair (CAT. 18/9352).

The fragmentary containers in which the cache of hafted axes (pl. LXX), the headdress bundle (pl. LXXXI), and the bead bundle (pl. LXXXIV) were found have been identified in the descriptions of those illustrations.

HISTORICAL SKETCH OF THE SPIRO MOUND

BY

FORREST E. CLEMENTS

The great burial mound located in LeFlore County, Oklahoma, seven miles north of the town of Spiro, has been the subject of widespread archaeological attention since 1933. It was extensively looted by commercial pot hunters in 1934–35, but its remnants were systematically excavated in 1936–38 by the University of Oklahoma.[1] The spectacular nature of the burial goods together with the richness of the site aroused enormous interest among professional archaeologists and lay persons genuinely concerned with the subject of prehistory. Attracted in no less degree were relic hunters and dealers, newspaper men eager for feature articles, and the idly curious. There resulted a welter of conflicting stories about the mound and the circumstances of its exploitation so that there is at present nowhere on record an authentic account of these matters. It is proposed here to set forth the historical background of the Spiro mound, to describe some of the legends associated with it, to expose some of the later fiction masquerading as truth which has grown up about the site, and to detail the major facts concerning its exploration.

The Spiro Mound first came to my attention in the winter of 1933–34 when I received a telegram from Dr. Carl Guthe in his capacity as Chairman of the National Research Council Committee on State Archaeological Surveys. This communication informed me that artifacts of an extraordinary nature were being offered for sale in some of the eastern curio markets and that they were said to come from a newly discovered prehistoric Indian mound in Bradens Bottoms, Oklahoma. Dr. Guthe asked me to investigate. At that time

[1] The scientific excavations in the Spiro area were conducted by the Anthropology Department of the University of Oklahoma as part of a university sponsored Works Projects Administration project. The University of Tulsa and the Oklahoma State Historical Society acted as co-sponsors and gave financial assistance. Mr. Frank Phillips, Bartlesville, Oklahoma; Mr. Clark Field, Tulsa, Oklahoma; and Mr. Alfred Reed, Grove, Oklahoma, were outstanding among private citizens who gave generously of their time and money in support of the work.

I had only recently assumed the headship of the Anthropology Department at the University of Oklahoma and was yet unfamiliar with the geography of the state and its archaeological provinces. A few minutes consultation with a road map showed me that Bradens Bottoms was near Ft. Smith, Arkansas and I started out. Upon arrival, local inquiry eventually directed me to "where the fellows were mining the old mound" and without too much difficulty I located the site. It had been leased by a group of six local men who had established a permanent camp at the base of the mound and were operating under the name of the "Pocola Mining Company." I later became acquainted with all these men and maintained contact with them for the succeeding two years during the period of their lease. But in order to present the story in chronological order it will be necessary to go back a bit in time and refer later to these lessees.

LOCATION AND EARLY HISTORY

The great funerary earth work which was to become known as the Spiro Mound was the outstanding structure among six other mounds, all located in Section 29, Township 10 N and Range 26 East in LeFlore County, Oklahoma. It stood about one mile southeast of the site of old Fort Coffee on the Arkansas River and the satellite mounds extended northwest along the flood plain of the river to within a quarter mile of the old fort itself. Since the Arkansas River is the distinctive topographical feature of this region and these earthworks with their surrounding villages were easily visible from the river, an examination of the records fo early explorations in the area should be of interest.

The earliest possible historic mention of this site would have to be in the De Soto narratives. The exact route of De Soto's expedition in the western part of its journey will probably always be a matter of conjecture but the consensus is that it did not get as far west as the present Arkansas-Oklahoma boundary. Nevertheless, examination of the various narratives and commentaries is useful because it is possible that this Spiro mound area was a thriving community in De Soto's time. Although there are some tantalizing possibilities in the narratives, they remain too indefinite for any conclusions to be reached.

The next possibility is that the explorations of La Harpe in 1721 might have encountered the site. This expedition came north

through eastern Oklahoma and reached the Arkansas River somewhere near the present town of Muskogee. But there is nothing in this narrative which can be construed as pertaining to anything like the Spiro site. We know that other foci of this culture existed on the Arkansas directly north of Muskogee, on the nearby Illinois River and on the Grand River east of Wagoner. The Spiro culture was so distinctive and exercised such a strong influence all through northeastern Oklahoma that it could not possibly have escaped notice if it had been in existence in the early 18th century. Although La Harpe encountered several large settlements of Indians in this region, his description of their houses, dress, ornaments and utensils shows that these were quite different from those characteristic of the Spiro people. We may conclude that this culture had decayed and was extinct by the early 18th century. Indeed, there are strong grounds for placing the latest possible date for the extinction of the Spiro culture even earlier. No sites of the Spiro focus in Oklahoma have ever given any evidence of historic or proto-historic contacts. One of the most valuable indicators of such contacts in this area is the presence of horse bones. Horses were widespread in the southern plains at the beginning of the 18th century for Du Tisné reports three hundred horses in an eastern Oklahoma village in 1719.[1] There is ample reason to believe that horses became common in this region during the first half of the 17th century. If even the dying remnants of the Spiro culture had been in existence at that time, it is reasonable to suppose that evidence of the horse would be present in at least some of the sites of the focus. No such evidence has come to light and there are no tangible indications that this culture does not antedate the beginning of the historic period, if this is taken as starting in 1541. The Spiro focus is thus definitely pre-historic although perhaps late pre-historic. More will be said in regard to probable dates at the conclusion of this account.

RECENT HISTORY

During the removals of the Southeastern tribes by the Federal Government in the early 19th century, bands of Choctaw Indians were embarked on boats which brought them up the Arkansas River to Oklahoma and landed them at Fort Coffee in 1838. They immediately settled thickly over the adjacent area and could not have failed

[1] Quoted in Wissler, Clark, The Influence of the Horse in the Development of Plains Culture, *American Anthropologist,* n.s., vol. 16, 1914, pp. 1–25.

to notice the unusual mound group lying within gun-shot of their point of debarkation. Indeed, several old Choctaw graves were found near the mounds during their excavation although none was actually intrusive in the earthworks. Yet, no mention of the mound site has been found in any available documents of the period. The earliest appearance of the Spiro Mound in a publication occurs in the 1916 edition of Thoburn's History of Oklahoma.[1] Thoburn published a photograph of the central mound structure as an example of "Mound Builder" earthwork but did not mention it in the text. The photograph was presumably taken in 1914 or 1915 when Thoburn was working in this area and actually excavated a small mound about a hundred yards from the great one. It is probably the earliest extant photograph of the site. In the picture it appears as a large conical structure connected with three smaller cones by low earthen saddles. It had substantially this same appearance in 1933 except that the terminal small cone had been destroyed by commercial diggers.

The Fort Coffee bottom today is largely inhabited by Negro farmers who are the descendants of the freed slaves of the Choctaw Indians. Most of the present inhabitants were born and have passed their lives there, as did their parents and grandparents. Thus, it is possible to learn something of the history of the mound over the last century by talking with the older Negroes and getting them to call to mind stories of their immediate forebears. Apparently, at the time of the Choctaw settlement the whole river bottom was covered by a dense cane-brake which formed an almost impenetrable thicket. The early Choctaw avoided this area because of the labor necessary to prepare it for cultivation. However, about seventy years ago the cane was cleared away so the land could be used for farming. A few large trees were growing on the mound at that time but these were cut for timber. This accounts for the smallness and scantiness of the trees showing in Thoburn's 1915 photograph. The level land thus cleared was brought under cultivation but the great mound and its satellite earthworks were not molested. These Negroes and Indians were familiar with ancient burial mounds in their Mississippi and Alabama homeland and so recognized the true nature of these earth structures. Accordingly, an attitude of reverence and superstitious fear developed toward the edifices which largely accounts for the fact that for almost a hundred years the mounds remained virtually intact in the midst of a settled though relatively primitive community.

[1] Thoburn, J. B., A Standard History of Oklahoma, Vol. 1, 1916, p. 8.

Supernatural manifestations were not wanting to reinforce this attitude. Tales were current of lurid blue fires which flickered around the great mound on dark nights, of strange noises, of the unaccountable fright of animals when near the structure. It was stated as an eye witness fact that mules could only be urged to approach the earthwork with the greatest difficulty and with increasing expressions of panic. One skeptic built a small barn nearby (which shows, incidentally, in Thoburn's photograph) but is reported to have been forced to abandon it because animals placed there during the night became so prostrated with terror that they were useless the next day. An old woman on whose land the great mound was located reported that one night she was mysteriously roused from sleep and, on looking out toward the mound, saw it covered by shimmering sheets of blue flame. In this ghostly illumination she distinctly perceived a team of cats harnessed tandem-fashion to a small wagon which they were pulling around and around the summit. News of this vision became part of the folklore of the community and even at the time of the University excavations no Negro would approach the site after night-fall.

LEGAL HISTORY

At the close of the Civil War the Indian tribes in Oklahoma who owned Negro slaves were, of course, forced to free them. In the case of the Choctaw, as well as some other groups, these freed slaves were regarded by the Federal Government as members of the tribe. They and their descendants participated in the land allotments made to the Indians in 1905–06. The land on which the Spiro Mound stood was part of the allotment of Aunt Rachel Brown, she who had enjoyed the vision of the cats, and during her lifetime she strictly forbade any trespass. At her death the land was sold to William Craig, a well-to-do Negro of the community, who continued to protect the mound. Craig died around 1930 and his estate was partitioned among his heirs. The particular parcel of land which included the great mound fell to two of his grandchildren, Helen and James Craig. Since both were minors, their maternal grandfather, George Evans, was appointed guardian of the children who went to live with him at his home in the Fort Coffee bottoms. In 1933 George Evans leased the site to commercial diggers.

At this point a small digression seems appropriate. The North American Indian Relic Collectors Association Official Bulletin has

placed on record a somewhat distorted picture of the lessees of the Spiro Mound and this version has had a certain perpetuation.[1] In this special "Great Temple Mound" issue it is stated that "boys of meager circumstances" had discovered the mound and that, after their efforts had shown the value of the site, the "Archaeologists and State officials" persuaded the legislature to enact a law forbidding archaeological excavations without a license. The requirements for such a license were such that only a "Graduate Archaeologist" could qualify. Having finagled this piece of legislation, "the Oklahoma professors" then vengefully began to prosecute the youthful discovers of the mound. Such patent injustice moved the Bulletin of the relic collectors' organization to compare the fate of these diggers to that of Columbus and, I fear, I probably was cast in the role of Bishop Fonseca.

Thus the notion arose that a group of youths had artlessly stumbled across the great mound and ingenuously endeavored to interest Oklahoma academicians in their discovery, only to meet with a rebuff which today would be characterized as resulting from bureaucratic apathy. Nothing daunted, so the story goes, these intrepid juveniles forged ahead with true pioneer spirit and innocently began to exercise individual initiative. Despairing of official action, they assumed the mantle of private enterprise and forthwith began an operation which some persons uncharitably described as plundering the site.

Some indication of the widespread nature of this version of the looting of the mound may be gained from the fact that in 1936 the editor of Time magazine bought a fantastic story concerning the Spiro Mound with a view to using it also as a subject in the March of Time newsreel. By that time, the University of Oklahoma and the Oklahoma State Historical Society had control of the site and the editors of Time and the March of Time had to deal with the representative of these institutions—which was myself. The first scenario for the proposed March of Time followed very closely the version outlined above except that two innocent little Indian boys were cast in the role of discoverers. A staff writer for Time was in Oklahoma several weeks accompanied by a March of Time camera crew, and it seemed difficult for them to believe that the truth was so utterly at variance with the story Time had bought. When they were finally convinced, they

[1] Vol. 1, no. 8, Chicago, March 1936.

abandoned the project. The grotesque nature of this story is outlined later.

So much for a version which is or was quite widespread. The truth is less spectacular. In 1933 a Mr. W. G. Cooper came to the community of Pocola near the Arkansas-Oklahoma line a few miles from the Spiro site. Mr. Cooper's home was in Arkansas and he was familiar with the business of the commercial exploitation of pre-historic remains which has been so common in that State. He soon heard of the great mound in the Fort Coffee bottoms of the Arkansas River and proposed to some of his associates that they try to get access to the site on the chance that its contents would prove profitable. This was in the depth of the depression when work was scarce and wages low so the proposition was eagerly embraced. George Evans, as legal guardian of the two minor owners of the site, was approached and agreed to ask the county court for permission to lease the property. A hearing in the judge's chambers was duly held, and in November 1933 a joint lease for a period of two years was made with Messers. W. G. Cooper, K. A. McKenzie, W. M. McKenzie, John Hobbs, J. M. Vandagriff and R. W. Wall. With the exception of Wall, who was a Negro preacher, all were white residents of the vicinity. Cooper and K. A. McKenzie were probably in their late twenties. W. M. was the father of K. A. McKenzie and the rest were of comparable age with him. So much for the artless youths who "discovered" the mound. So far as I am aware, at no time did these men call the attention of any scientifically responsible person to the site.

After the lease was acquired, the men established a camp on the scene and began work at a point about midway in the long axis of the great mound. Almost immediately their labors were rewarded and by December they had found artifacts whose spectacular nature, when offered in the curio markets, attracted the attention of professional archaeologists and resulted in the previously mentioned request from Dr. Guthe to investigate the matter. The main reason for this request seems to have been that the specimens were so unusual and of such fine quality that it was suspected they were spurious. There was thus a question whether they had been actually excavated or had been manufactured with intent to deceive gullible collectors. Spiro material became highly prized among collectors and commanded fancy prices. I have no doubt that there are, now, forged specimens purporting to come from Spiro. I believe, moreover, after the site be-

came publicized, that many collectors and dealers in good faith bought specimens of genuine pre-historic manufacture which bore a family likeness to Spiro material and were represented as coming from that site but which actually did not. With this caution, I also believe that the bulk of the material now in the hands of collectors and museums and labelled as of Spiro origin is genuine.

During the period of the commercial lease, the University of Oklahoma kept in close contact with the lessees. Relations were friendly and no attempt was made to interfere with their operations. It seemed then the only hope of saving the site was that the slowness of the digging would result in the expiration of the lease before too much damage had been done. My advice to the lessees was all directed to this end, and this point of view was given cogency by an object lesson which took place under their very noses. The small terminal cone of the great mound was not included in the pot hunting lease because it extended on to another property. The owner of this property, excited by the tales of wealth he had heard, hitched his mule team to a scraper and demolished this small mound in a few days. Naturally, the specimens and burials it contained were spread in fragments over his field and he realized nothing by his enterprise. The lessees of the big mound had come to know that only whole specimens in good condition were saleable and thus appreciated the value of slow, careful hand work. For this reason they were willing to take advice to proceed slowly and for many months confined their operations to the low central part of the structure, leaving the large cone unmolested.

At first no funds were available through the University of Oklahoma and, consequently, no steps could be taken toward saving the mound. As time went on, however, more interest began to be shown and the Oklahoma Historical Society was persuaded that here was a subject in its legitimate field. Meanwhile, after their first flush of success, the commercial diggers were becoming discouraged and finally offered to sell their lease. Negotiations were opened with the Oklahoma Historical Society which agreed to meet the price set on the lease. Suddenly, however, the lessees refused to go through with the transaction. An offer of an increase in price failed to move them and it seems likely they had received financial or other encouragement from outside sources.

The success of this venture in the commercial exploitation of prehistoric remains began to stimulate others. Oklahoma had been

relatively free from this sort of thing but soon commercial relic digging was going on all over the State. The situation was brought to the attention of the State Legislature which passed an act in the spring of 1935 requiring a license for all such activity. Licenses were to be issued by the head of the Anthropology Department at the state university to applicants who had the necessary scientific and professional qualifications. This worked no hardship whatever on reputable scientific institutions or persons but did serve to make commercial looting illegal. After this law went into effect, the Spiro lessees were given notice to cease their operations until and unless they could qualify for a license. They paid no attention to this notice and in the summer of 1935 a complaint was lodged with the county attorney and the sheriff's office in LeFlore County. A deputy sheriff visited the site and in a friendly manner told the "boys" it was against the law to continue digging. Amid loud recriminations and threats of mayhem the lessees gathered up their tools and departed.

This was in July and, although the original lease would expire in November, the lessees refused to consider negotiations for transferring it, even after the Historical Society had gone so far as to offer them a handsome profit, about 300 percent. Receiving no salary from the University during the summer, I accepted a temporary position in California for that interim. At this time, the large cone of the great mound was still untouched and before I left Oklahoma I understood that the county attorney and sheriff of LeFlore County would see that the new archaeological law was enforced since the Spiro situation had been specifically and emphatically called to their attention.

I shall never forget the shock and grief I experienced when, upon my return in the late fall, I learned that digging had been resumed during the summer, and had been allowed to proceed unmolested; that the great mound had been tunneled through and through, gutted in a frenzy of haste. I went out to look at it. Sections of cedar poles lay scattered on the ground, fragments of feather and fur textiles littered the whole area; it was impossible to take a single step in hundreds of square yards around the ruined structure without scuffing up broken pieces of pottery, sections of engraved shell and beads of shell, stone and bone. The site was abandoned; the diggers had completed their work.

VICISSITUDES OF THE UNIVERSITY ACQUISITION

Although it was apparent the great mound together with most of its satellite works had been so badly damaged that any adequate reconstruction of the culture was probably impossible, it was nevertheless felt that much could still be learned from systematic work on the site. As the Oklahoma State Historical Society was still willing to advance funds to further this purpose, the first step was to acquire a lease on the property since this was the only feasible way of dealing with the owners. The original commercial lease had expired in November and negotiations were proceeding smoothly when a sensational feature story appeared in a Sunday edition of the Kansas City *Star*. This article was entitled "King Tut Tomb in the Arkansas River Valley" and was replete with photographs illustrating a melodramatic description of the Spiro site.

In a matter of days curio dealers and commercial diggers were flocking around George Evans bidding against each other for a new lease. The poor man, as might be expected, lost his head. From mere hundreds of dollars his price soared to thousands. A sort of insane fever seemed to lay hold of Evans and the dealers as well. Tales of pearls by the bushel began to circulate. One man declared that Tiffany's in New York had valued a quart of Spiro pearls at half a million dollars. For a few days the whole thing took on the aspect of a minor oil boom until cooler thinking slowly began to assert itself. Most of these men knew in their hearts that such tales were false and the University by this time had made it clear that no infractions of the new archaeological law would be tolerated. Moreover, the Governor of Oklahoma stood ready to enforce the law if the county authorities failed again to do so. All these considerations eventually quieted the situation but it was half a year before the owners of the site were willing to discuss any terms within reason.

Finally, in the late spring of 1936 George Evans, as guardian of the two minors, agreed to ask the county court for permission to lease the site land. The judge agreed and a date was set on which the lease would be sold at auction in the judge's chambers as provided by the law governing such cases. The Historical Society had appropriated $450.00 and Mr. Clark Field, of Tulsa, had indicated he would defray any additional costs. When the auction assembled in the judge's chambers, a dealer from Arkansas was present who announced his intention of bidding and making a test case of the archaeological

law in event he received the lease. This dealer was out-bid at $600.00 and the judge was about to award the lease to the Historical Society when a telegram was handed in from a Mr. Jack Reed, of Fayetteville, Arkansas, but then in New York, saying that he wished to bid and asking that the sale be held up until he could do so. Over protest, the judge postponed the sale for one week.

And now entered one of those quirks of fate which would seem incredible except that it fits so well into the whole fantastic story of the Spiro Mound. James Craig, the younger grandchild of George Evans and part owner with his sixteen year old sister of the site land, was in an advanced stage of tuberculosis. He was perhaps twelve years old. The precarious state of his health was one of the arguments used against adjournment of the lease sale because his death would result in many legal complications before the land could again be offered for lease. Three hours after the postponement of the sale I watched little James Craig die as he lay in bed on the porch of his grandfather's cabin, almost in the evening shadow of the great Spiro Mound.

The legal technicalities resulting from this death were eventually adjusted, nothing further was heard from the Jack Reed bid, and a lease was finally consummated in favor of the Oklahoma Historical Society and the University of Oklahoma. By this time, certain private support was forthcoming, notably, as mentioned earlier, from Mr. Frank Phillips, Mr. Clark Field and Mr. Alfred Reed. At the same time, Works Projects Administration funds had become available for archaeological work and the salvaging of the Spiro mounds was begun in the summer of 1936. The material recovered is now in the Museum of the University of Oklahoma; the Museum of the Oklahoma State Historical Society, Frank Phillips' Museum at Woolaroc Ranch near Bartlesville, and the Philbrook Art Center at Tulsa, on loan from the University of Tulsa. Complete records of the excavations and thousands of photographs are at present on file at the University of Oklahoma, at Norman.

FACT AND FICTION

There are a great many stories current about Spiro and what was found by the commercial diggers. Some of these are so patently absurd they have gained recognition only among the credulous but others have a plausible sound and have been accepted in some quarters

as reasonably accurate in lieu of anything better. Some of these accounts have reached print, others circulate by word of mouth. Only two will be dealt with here.

THE PEARLS AND THE CATHOLIC BISHOP

In the previous reference to Time magazine and the March of Time newsreel it was stated that they had brought a story concerning the Spiro Mound. I have not seen this story but was informed by the staff writer who was in Oklahoma that it dealt in part at least with a restoration process by which the Spiro pearls could be given fabulous commercial value. This story seems to have originated with Mr. Jack Reed, mentioned previously as the gentleman whose telegram caused a postponement of the lease auction. Mr. Reed was on good terms with the original lessees and acquired from them a considerable quantity of pearl beads, feather cloth, engraved shells and other specimens. I later talked to Mr. Reed and he told me some of the ideas he had concerning the interpretation of certain Spiro specimens. In 1937 a Sunday feature appeared in a Fort Smith newspaper which presented some of the same ideas and quoted Mr. Reed.[1] It seems likely that this story was in some respects at least similar to the one in which Time magazine had been interested.

Briefly, the newspaper article stated that Mr. Reed had at least a hundred thousand "oriental" pearls from Spiro and that two thousand of these were unusually large. By means of "an expensive process known to jewelers" these pearls were being restored to commercial value and it was implied that the Spiro Mound would become a source of vast wealth to its exploiters. But the most amazing part of the story concerned an engraved shell showing a seated human figure dressed in ceremonial regalia and holding what are presumably symbols of priestly office. Various portions of this design were interpreted as the throne of a Catholic bishop, a bishop's crozier, a halo, a maniple, a stole, a mitre and the Christian cross. The only thing lacking, apparently, was the Bishop's ring. All this was taken as proof that Christianity in its Roman Catholic phase had been introduced into America in pre-Columbian times. In conversation, Mr. Reed elaborated further on this idea. He believed that members of a Catholic colony of Icelandic Danes had left Iceland in the 10th

[1] Hicks, Edwin P., Spiro Indian Mounds Yield Archaeological Treasures, *Southwest Times Record* for Sunday, May 9, 1937, Fort Smith, Arkansas.

or 11th century and crossed the Atlantic to America. By some means they or their descendants had finally reached the Arkansas River and settled at the Spiro location where they had built the great mound. The engraved shell which he calls the "Bishop-plate" probably commemorated the consecration of the first Catholic bishop in America long before the arrival of Columbus.

I do not suppose it is necessary to point out that all the skeletal remains found at Spiro were unmistakably those of American Indians and that the engraved shell designs are subject to more plausible interpretations which do not involve any Christian symbolism. In regard to the pearls, a practical restoration process may exist but if so it is not known to any jewelers whom I have consulted nor to the North American Gemological Institute.

THE CENTRAL CHAMBER AND THE TUNNEL

One of the most widely spread word-of-mouth accounts of the interior structure of the Spiro Mound runs something as follows. The original diggers are said to have run a trench across the middle of the earthwork at a point between two of the smaller connected cones. At about the axis of the mound they struck a tunnel in which a man could walk erect. This tunnel ran along the axis of the mound and under the large cone where it ended in a wall of cedar posts. When this wall was pierced, the tunnel opened into a large dry chamber of oval shape about 20 by 30 feet with an arched roof 15 feet high. This vault was formed of upright cedar posts, the whole interior being draped with colored cloth woven of fur, hair and feathers. At one end was an altar on which rested a large pottery urn filled with pearls. A single shrouded skeleton lay before the altar and the floor of the vault was covered with repoussé copper breastplates, engraved conch shells, beads and carved stone ear spools. Pottery vessels decorated with incised designs and sculptured stone effigy pipes were found on the floor near the tapestried walls.

There are variants of this account but they all seem to follow the general pattern outlined above. I was not present at this spectacular discovery so I do not know what actually happened but I do not believe there is much truth in the version given above. Not only is this description too romantic to sound very plausible but there are more tangible grounds for doubting it.

When the University of Oklahoma began work on the site, its original surface appearance had not changed to any marked degree. The low cones and connecting earthen saddles bore no evidence of trenching or systematic excavation but had been thoroughly "pot-holed" in most random fashion. I might also say that this was the only kind of digging I saw these men do during the approximate year and a half through which I observed their operations. The large dominant cone of the mound appeared intact but three tunnels had been driven into it from different directions and all met in a large chamber which seemed to have been hollowed out of the interior of the mound. This chamber was irregular, varying from 15 to 20 feet across and was perhaps eight feet from the floor to the center of the roof. There was no indication that it was of other than recent excavation, for tool marks were thick over its clay-like walls. It was bare except for a few gin bottles and cigarette stubs. The great cone, therefore, was but a thick shell of earth.

The University excavation employed the profile system throughout the work. One of the virtues of this system is that it clearly reveals the earth structure of a mound and can easily distinguish old from new disturbances in that structure. The profiles began at the low end of the long axis of the mound and proceeded along it. The myriad pot holes and fills of the commercial diggers could be clearly seen in each profile but these were seldom connected and there were extensive areas of undisturbed mound structure, particularly in the lower levels, to which the relic hunters had not penetrated. If there had been any ancient or modern tunnel running along the axis of the mound it is absolutely impossible that we would have failed to detect evidence of its existence. For my part, then, I am sure that the story of a pre-historic tunnel leading along the axis of the structure into the great cone is a myth, although it may have been repeated so often by this time that its very originators have come to believe it.

Evidence is not so definite in regard to the supposed central chamber in the large cone. I have no doubt that some sort of structure made of cedar poles existed in the heart of the main mound and that it contained a rich find of spectacular specimens. But the entire mound was a funerary edifice containing an estimated 900 interments with burial goods, and the proportion of specimens found in the central feature can only be a small part of the total. Yet, according to some reports, the majority of the finds were made in this central chamber.

It might have been possible to form some estimate of the size of this chamber from the number of cedar poles left in the debris. Some of these were carried away by collectors but they were bulky, hard to transport and there was actually little interest in them. It does not seem likely that many can be accounted for in this fashion. On the other hand, the weather was getting colder when the curio hunters tunneled into the great mound and fire wood is scarce in the cultivated river bottom. Local residents say that the diggers used these cedar poles for fire wood although they themselves do not admit such wanton destruction. If many poles were burned, then we cannot use this basis to speculate on the nature of the central chamber. However, if the poles were not destroyed and comparatively few were carried off, then we can again say that the elaborate description of the canopied cedar vault is a myth since no more than thirty small poles were found among the debris.

Another indication concerning the central chamber is found in the amount of earth composing the dump heap left by the commercial excavations. All of this earth came from the tunneling of the large cone and was wheeled in barrows to a dump. This dump contained many beads, pottery sherds, pieces of shell and fragments of textiles. All of this loose earth was screened during the University work on the site and was estimated to amount to about 6000 cubic feet. The three tunnels which had been driven into the mound would account for perhaps 1000 cubic feet. Since no excavations had been made on the exterior of the mound, all this earth came from the interior. There is thus about 5000 cubic feet not accounted for unless we explain it as coming from a chamber which was hollowed out by the diggers themselves at the junction of the tunnels in the center of the mound. Allowing for the difference in compression of earth between that in the dump heap and its compactness when part of the mound structure, these figures seem coherent within themselves. In other words, the amount of earth in the dump heap can only be accounted for by assuming that it originally came *both* from the tunnels and a central chamber hollowed out by the relic hunters themselves. Evidence of this sort may not be strictly conclusive, but to me it carries considerable weight.

After the University work at the site had proceeded over a year, more or less friendly relations resumed with some of the original lessees. I talked with all these about the central chamber and no

two of them told the same story. They had had a quarrel among themselves over final division of the loot and had had very little contact with each other since they finished their excavation. Consequently, they had not talked the matter over sufficiently to develop a common version of what was found in the interior of the mound. I came to the conclusion, which I still hold, that they really did not know just what kind of central structure did exist. In the final stages of their work they had become distrustful of each other, suspecting that individuals were pocketing choice specimens instead of putting them in the common pool. They actually split up into three factions which may be the reason three separate tunnels were put into the large mound.

When the large cone was excavated by the profile system, this central hollow was fully exposed. It bore every evidence of having been made in the manner suggested above. Certain out-of-work coal miners had been hired as laborers by the relic hunters and it may have been suggestions from these miners that gave the lessees the idea of driving tunnels into the big mound. The hollow chamber, when revealed by the cross profiles reminded one at once as being typical of miners' work.

When all these factors are taken into consideration together with other minor ones, which space will not permit to be detailed here, it seems likely that there was no central chamber in the big cone. There probably was an elaborate log tomb burial with rich burial goods. In the process of cleaning out this tomb, the excavators gradually hollowed out a chamber in the interior of the mound and came eventually to believe it had been there all the time. Since the earth of the mound was full of burials, some in single and some in group log tombs, the relic hunters began to enlarge the first chamber as they encountered these features in the walls. They worked from the inside out, so to speak, until they finally produced the central chamber found when they abandoned their operations.

THE SPIRO FOCUS

No attempt will be made here to present any analysis of the Spiro focus culture. That would require a monograph in itself. Moreover, this catalog contains descriptions of specimens which are well representative of the culture except for the pottery and house types. Here it will suffice to outline the distribution of the Spiro focus, make

a few remarks on the pottery and house types and hazard a guess as to a tentative date.

Sites of the Spiro focus are found along the Arkansas River from extreme western Arkansas to the confluence of Grand River north of Muskogee, Oklahoma. Other sites occur along Grand River north and east to Missouri and probably into the southwestern part of that State. Still other sites of the focus are found along the Illinois River near the town of Talequah and additional ones occur along the Poteau River south of Spiro. The westernmost site of this culture is on the Canadian River near the town of Eufala, Oklahoma. All these streams are tributaries of the Arkansas River. It is likely that the culture is widely distributed throughout the northeastern quarter of Oklahoma, adjacent Kansas, Missouri and Arkansas, the sites occurring on the principal streams which form part of the Arkansas River system.

THE SPIRO MOUND GROUP

The large so-called "Temple" mound at the Spiro site was 262 feet in length, its long axis extending in a northwest-southeast direction. The large cone was 106 feet in diameter at the field level and the average width of the connected mound structure was about 80 feet. The apex of the large cone stood 34 feet above field level but the mound structure extended approximately 5 feet deeper making the total height of the cone about 39 feet. The slope was approximately 35°.

Due west of this large earthwork about a quarter mile was a dome-shaped mound rising to 18 feet above the level of the field in which it stood. This mound was about 125 feet in diameter and its slope was less than 10°, so that it had been plowed across for several years and planted to cotton. Pothunters had sunk a shaft from the apex of this mound to its floor but apparently found nothing to reward them and abandoned it. The remnants of the mound were excavated by the University project and the structure was found to have consisted of an original primary truncated cone with a baked clay surface. This formed the core of a later mound which may also have been truncated and was likewise covered with a surface of baked clay. At a still later period, earth had been heaped over the structure to form the final dome-shaped mound. Few burials were encountered in this site but it contained artifacts which undoubtedly belong to the Spiro focus.

About 200 yards north of this mound was another structure approximately 10 feet high, 70 feet long and 30 feet wide. This mound was not excavated. Three small mounds which had been badly damaged stood in a group about 100 yards west of the dome-shaped mound. They seem to have been about 4 feet high and perhaps 12 to 15 feet in diameter. Three-fourths of a mile to the west near the site of old Fort Coffee, was a large conical mound, 21 feet high at the apex, with steeply sloping sides, and 62 feet in diameter. Finally, directly south of the great Spiro Mound about 150 yards was the base of a small mound which had been partially excavated by Thoburn in 1915. The results of his work on this mound and on one at the junction of the Elk (Cowskin) River with Grand River in Delaware County, Oklahoma, formed the basis of his discussion of the "Mound Builder" culture which he attributed to Caddoan peoples in one of his publications.[1] His description of the artifacts from these two mounds when taken in connection with the results of the University work on the remnants of the same sites leaves no doubt that these are components of the Spiro focus.

HOUSE TYPES

Among the many components of the Spiro focus excavated in northeast Oklahoma by the University—WPA archaeological project, were a number of village sites usually adjacent to or in the vicinity of mound structures. These contained the remains of houses outlined by post molds, clay floors and, in some cases, charred sections of walls. Hence, the typical house structure of Spiro focus villages can be reconstructed. These houses were square or slightly rectangular in ground plan, a typical dimension being about 30 by 25 feet. The walls were formed of 4 or 5 inch posts set upright 6 to 8 inches apart. Coarse withes were twined in and out among these posts to make a heavy wicker work wall. The floor was of packed clay which did not often contain a fire pit. The roof was supported by a frame of four heavy center posts set 5 to 7 feet in from the walls. The roof itself was formed of rafter poles laid closely together extending from the center post support to the top of the walls. These rafter poles were covered with brush and reeds which may have been

[1] Moorehead, Warren K., Archaeology of the Arkansas River Valley, Yale University Press, 1931. This publication contains a chapter by Joseph B. Thoburn, The Pre-historic Cultures of Oklahoma.

overlaid with earth or clay but evidence is not definite on this point. Most of the houses had a small entrance passage with walls made in the same manner as the house walls but a considerable number lack this feature. There is no evidence that the houses were built over any prepared pits.

POTTERY

As might be expected in a culture presenting such an elaboration of design elements in its art, Spiro pottery is extremely varied both in vessel shape and decorative motifs. A number of ware types are represented of which the finest are the *Red Filmed Ware* with a red slip firmly bonded to the paste and the *Polished Ware* which is usually black. Hardness of the vessels ranges between 2.5 to 4 with a hardness of 3 being typical. In large utilitarian vessels the temper is usually coarse shell but the more finely made types appear to be tempered with bone, grit, crushed sherds or fine shell, grit and bone being the most common. No painted designs have been found on any Spiro focus pottery. The decoration is applied by incising, trailing, engraving, punctating and modelling. Design elements include hachures, chevrons, concentric circles, cross-hatching and scrolls. Common shapes are water bottles either with or without effigy heads, bowls, beakers, amphorae, wide-mouthed ollas, and jars. Decorative motifs on the pottery are entirely different from those on the engraved shell or from the repoussé designs on copper plates.

DATING

The cultural affiliations of the Spiro focus cannot be determined until systematic comparative work is done but it seems safe to say that the complex of traits tends to fall into the Lower Mississippi pattern although it contains a number of Middle Mississippi elements.

We have previously seen that the sites of the Spiro focus in Oklahoma which have been explored ante-date the beginning of the historic period in that region. There are a few indications which tend to narrow down the probable time range. The cedar poles recovered from tomb burials in the site were well preserved and when the wood was freshly cut it gave off its characteristic odor. Examination of the annual growth rings revealed no characteristic patterns which correlated well enough with each other to prove of value,

although more skilled examination of the Spiro wood might be worthwhile. However, the analysis of fossil pollens, while by no means so accurate as dendrochronological investigation, has achieved a certain recognition as a means of assigning rough dates to recent geological formations. A trial of this method was made at Spiro.

A water-filled depression paralleled the long axis of the Spiro Mound and there were no obvious geological features which would account for its origin by natural means. It might be supposed, therefore, that it was formed by excavation of the earth which was used to build the great mound. Borings with a Swedish peat borer revealed that the bottom of this sink consisted of a layer of compact water-deposited silt about three feet thick, sharply differentiated from the underlying clay. Core sections of this deposit were analyzed by Dr. Paul B. Sears, at that time head of the Botany Department at the University of Oklahoma. Dr. Sears had been doing a good deal of work in dating peat bogs by means of pollen analysis and was anxious to try the method on this Spiro material. Examination of the cross-section cores of the Spiro deposit showed a gradual increase in the pollen of gulf pine which is known to have been migrating to the northwest for several centuries. By correlating these pollen counts with those from previously dated peat beds in nearby Arkansas where the geological and botanical situation afforded a more thorough basis for dating, Dr. Sears came to the tentative conclusion that the Spiro deposit had been laid down between 500 and 1200 years ago. He felt that probabilities favored the later rather than the earlier date.

This, of course, is by no means conclusive, but taken in connection with other factors it supplies some grounds to think that the Spiro culture existed sometime during the first few centuries immediately preceding the historic period. Spiro was undoubtedly the center of the focus for the culture is manifested in more attentuated form in the other sites. Pending further analysis and the availability of new evidence, then, I am inclined to think that the great efflorescence of ritualistic art which forms such a distinctive feature of this culture and seems to have provided its impetus took place in the 14th or early 15th century. The recent analysis of the ceremonial complex by Waring and Holder [1] is coherent with this view.

[1] Waring, A. J. Jr. and Holder, Preston, 1945, *op. cit.*

In a paper published since the foregoing was written, Krieger [1] inclines to a pre-historic date and apparently would not object to placing the culture in the 15th century. He refers to unpublished studies which indicate the Spiro focus was at least partly contemporaneous with Upper Republican in the central Plains. Wedel [2] has offered evidence tending to show that Upper Republican had generally become defunct by the beginning of the 16th century. Thus, if Krieger is correct about the approximate contemporaneousness of the two cultures, a pre-16th century date for Spiro again seems indicated. In one Upper Republican site near Optima, in the Oklahoma panhandle, black-on-white sherds found on the floor of House 2 have been dated by Mera as originating in the Pecos valley in the period 1300–1375 A.D. Other Southwest sherds at this site are of later dates but were not found in house pits and there is nothing to indicate that they were associated with the site at the time the Upper Republican houses were occupied. It seems, therefore, that as evidence accumulates it tends to favor a pre-historic rather than a post-historic date for the Spiro culture in the 15th or late 14th century.

[1] Krieger, Alex D., An Inquiry into Supposed Mexican Influence on a Prehistoric "Cult" in the Southern United States. *American Anthropologist,* n.s., vol. 47, no. 4, October–December 1945, pp. 483–515.

[2] Wedel, Waldo R., Culture Sequence in the Central Great Plains. Smithsonian Institution, *Miscellaneous Collections,* 100, 1940, pp. 291–352.

PLATES

PLATE I

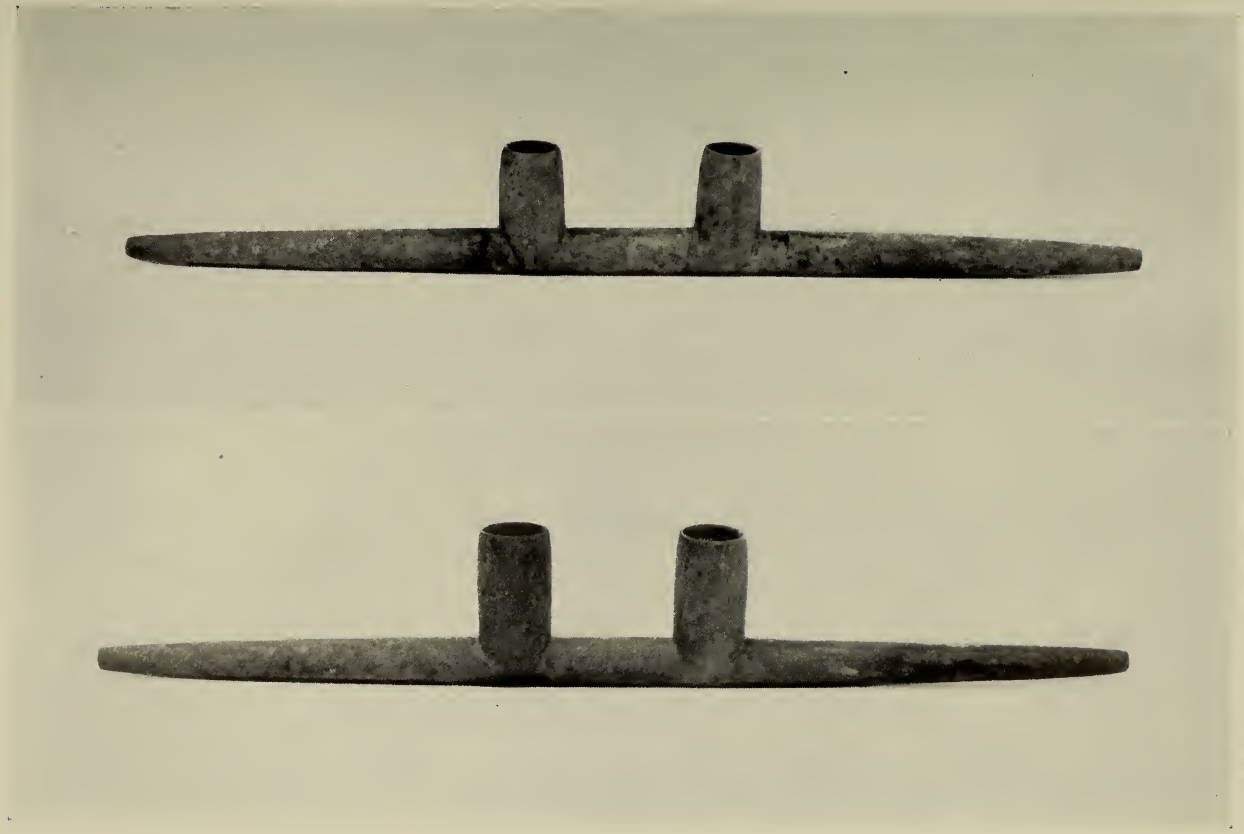
STONE PIPES

20/7096 (MAF.)

Length, 2 ft. 5¾ in.; height of bowls, 2½ in.; diameter of bowl openings, 1⅜ in.; depth of bowl drillings, 3¼ in.

18/7488

Length, 2 ft. 4¼ in.; height of bowls 2 15/16 in.; diameter of bowl openings, 1⅜ in.; depth of bowl drillings, 3 13/16 in.



20/7096 (MAF.)

18/7488

PLATE II

STONE PIPES

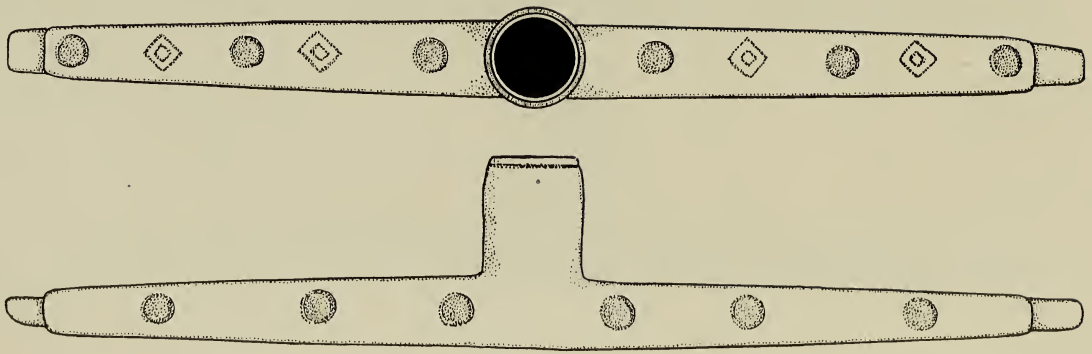
20/7095 (MAF.)

Length, 1 ft. $6\frac{3}{4}$ in.; height of bowl, 4 in.; diameter of bowl opening, $1\frac{1}{2}$ in.; depth of bowl drilling, $4\frac{5}{8}$ in.

19/1251

Length, 1 ft. $7\frac{7}{8}$ in.; height of bowl, $2\frac{1}{4}$ in.; diameter of bowl opening, $1\frac{3}{8}$ in.; depth of bowl drilling, $3\frac{3}{8}$ in.

20/7095 (MAF.)



19/1251

PLATE III

STONE PIPES

20/744

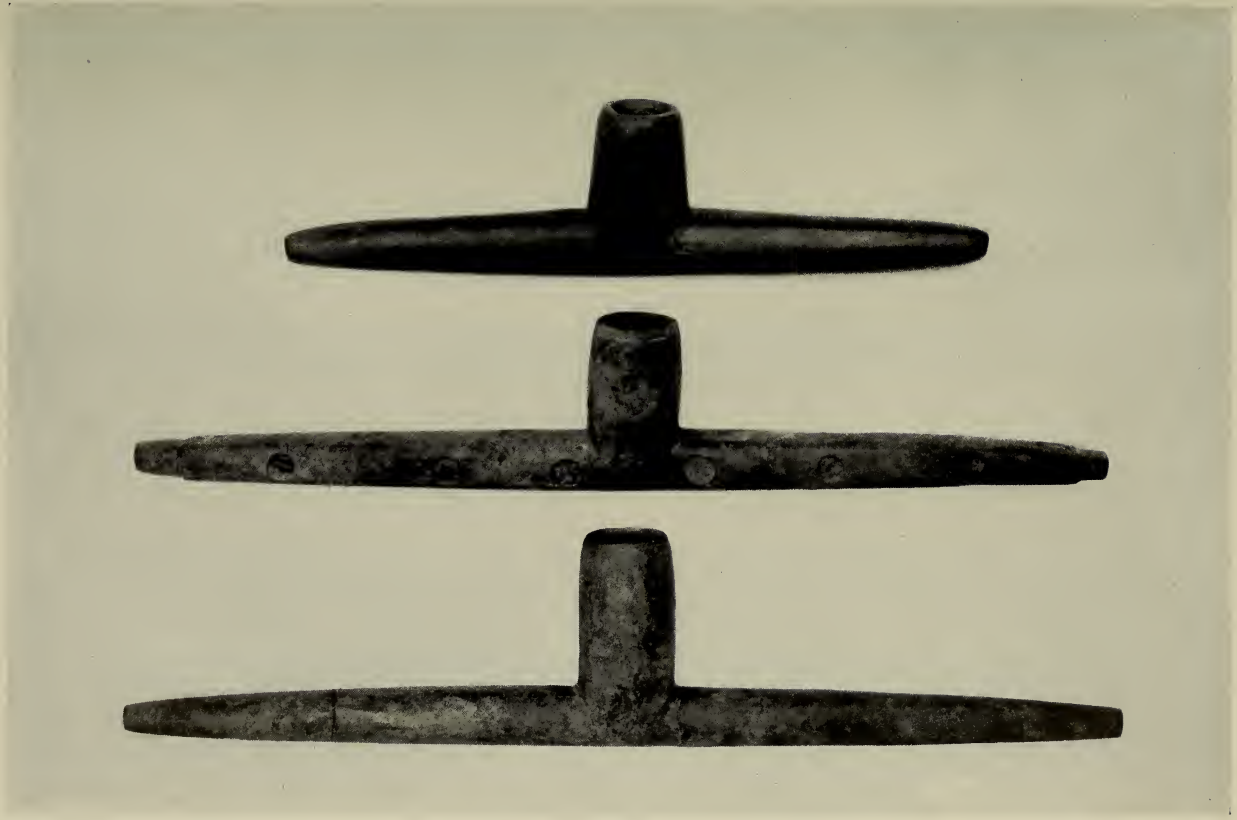
Length, 1 ft. $2\frac{1}{2}$ in.; height of bowl, $2\frac{1}{2}$ in.; diameter of bowl opening, $1\frac{3}{16}$ in.; depth of bowl drillings, $3\frac{1}{4}$ in.

19/1251

See PLATE II.

18/6556

Length, 1 ft. $8\frac{1}{4}$ in.; height of bowl, $3\frac{1}{4}$ in.; diameter of bowl opening, $1\frac{3}{8}$ in.; depth of bowl drilling, $3\frac{3}{4}$ in.



20/744
19/1251
18/6556

PLATE IV

STONE PIPES

20/746

Length, 9¼ in.; height of bowl, 1¾ in.; diameter of bowl opening, 1 1/16 in.; depth of bowl drilling, 2⅛ in.

18/6432

Length, 11¼ in.; height of bowl, 2⅝ in.; diameter of bowl opening, 1 1/16 in.; depth of bowl drilling, 3 3/16 in.

20/745

Length, 1 ft. 5¼ in.; height of bowl, 1¾ in.; diameter of bowl opening, 1⅝ in.; depth of bowl drilling, 2⅛ in.

20/746
18/6432
20/745

PLATE V

STONE PIPES

20/749

Length, $3\frac{3}{8}$ in.; diameter of bowl opening, 1 in.; depth of bowl drilling, $1\frac{1}{16}$ in.

20/748

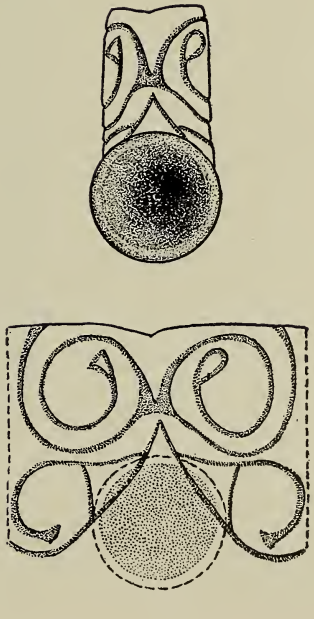
Length, $2\frac{7}{8}$ in.; diameter of bowl opening, $1\frac{1}{8}$ in.; depth of bowl drilling, $1\frac{5}{8}$ in.

20/747

Length, $6\frac{7}{8}$ in.; diameter of bowl opening, $1\frac{1}{8}$ in.; depth of bowl drilling, $2\frac{1}{8}$ in.

20/749. 20/747 20/748

20/747



20/748

PLATE VI

STONE BIRD EFFIGY PIPE

20/7122 (MAF.)

Length, 1 ft. 5⅛ in.

20/7122 (MAF.)

PLATE VII

STONE HUMAN EFFIGY PIPE

18/9112

Height, $9\frac{7}{8}$ in.

18/9112

PLATE VIII

STONE HUMAN EFFIGY PIPE

18/9112

Height, $9\frac{7}{8}$ in.

18/9112

PLATE IX

STONE HUMAN EFFIGY PIPE

18/9112

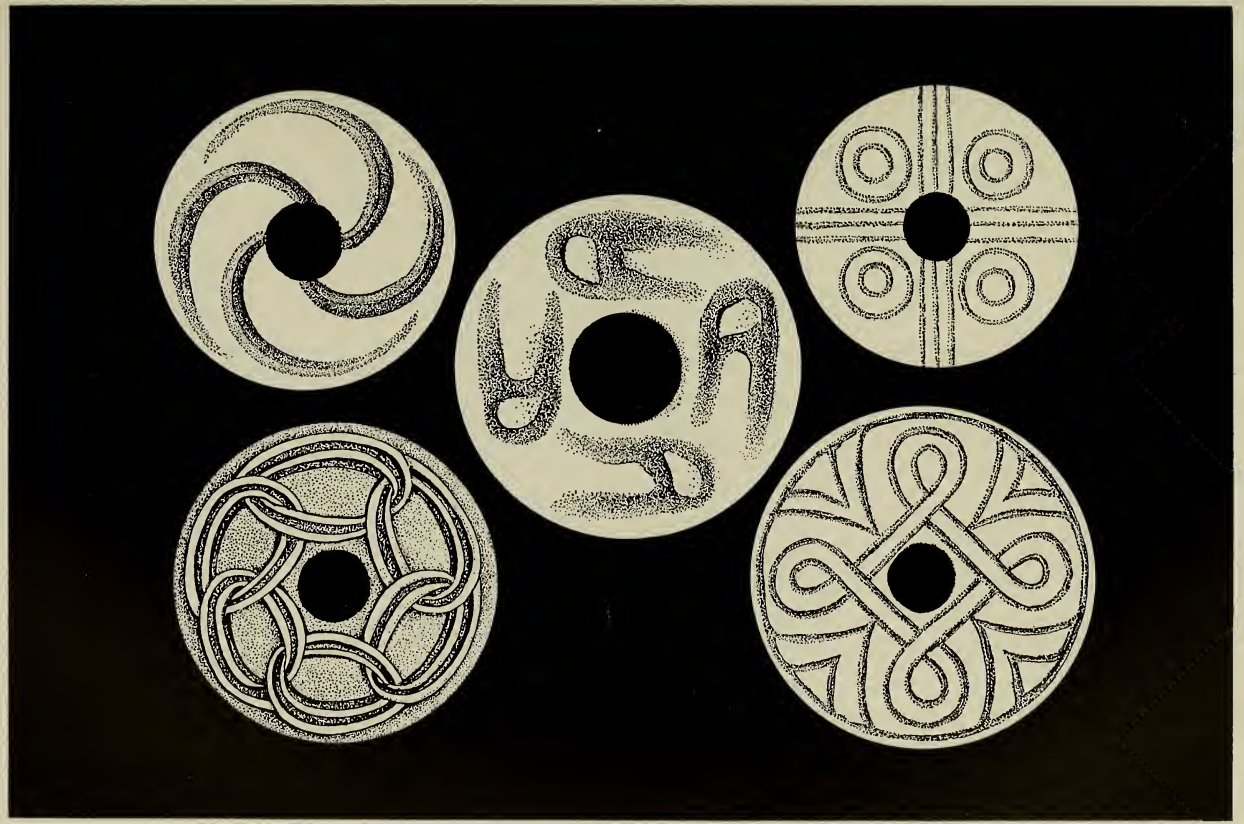
Height, 9⅞ in.

18/9112

PLATE X

STONE EAR SPOOLS

18/6433. Diameter, $2\frac{7}{8}$ in.; thickness, $\frac{5}{8}$ in.
18/6521. Diameter, $2\frac{3}{4}$ in.; thickness, $\frac{11}{16}$ in.
20/684. Diameter, $3\frac{1}{4}$ in.; thickness, $\frac{5}{8}$ in.
20/682. Diameter, $3\frac{1}{16}$ in.; thickness, $\frac{5}{8}$ in.
20/680. Diameter, $3\frac{1}{4}$ in.; thickness, $\frac{5}{8}$ in.



18/6433
20/682

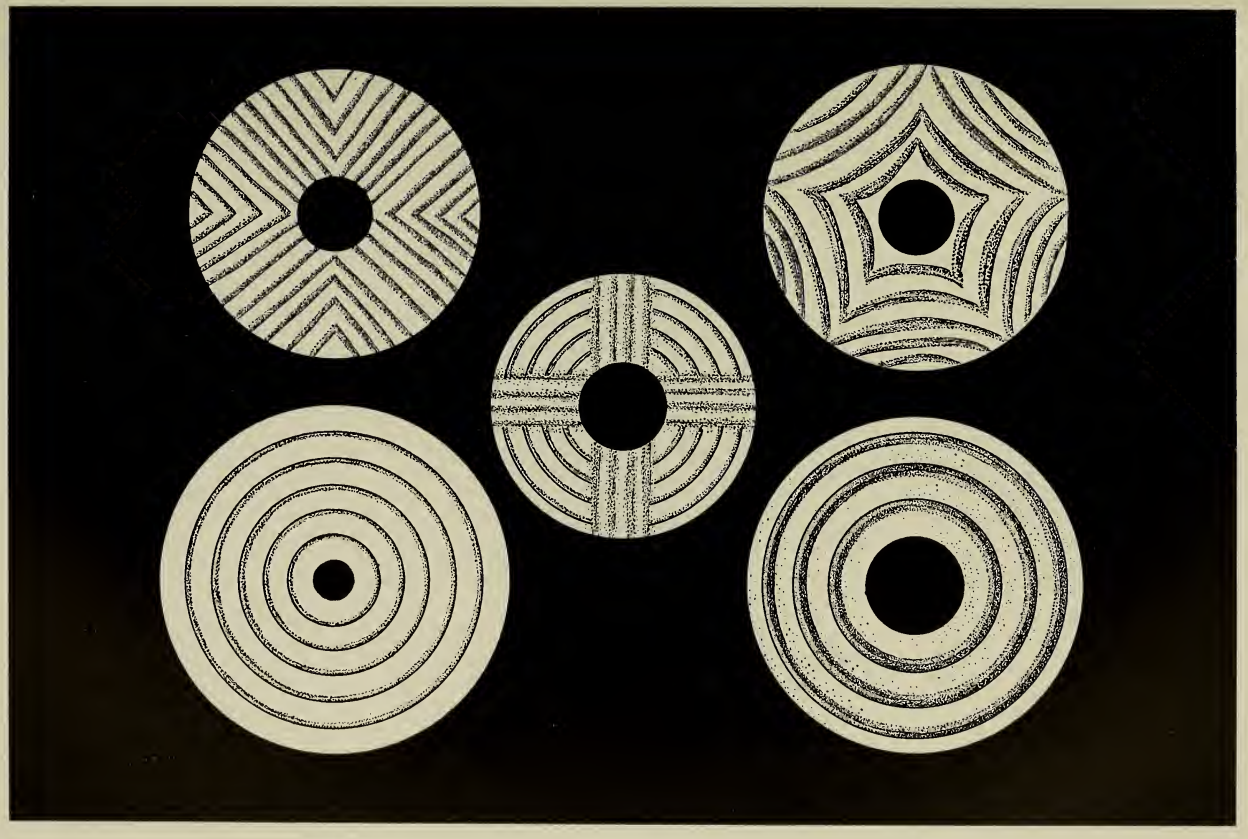
20/684

18/6521
20/680

PLATE XI

STONE EAR SPOOLS

20/686. Diameter, $2\frac{3}{8}$ in.; thickness, $\frac{5}{8}$ in.
18/6497. Diameter, $2\frac{7}{8}$ in.; thickness, $\frac{11}{16}$ in.
19/8081. Diameter, $2\frac{1}{2}$ in.; thickness, $\frac{9}{16}$ in.
20/678. Diameter, $3\frac{1}{4}$ in.; thickness, $\frac{13}{16}$ in.
18/6522. Diameter, $3\frac{1}{8}$ in.; thickness, $\frac{3}{8}$ in.



20/686
20/678

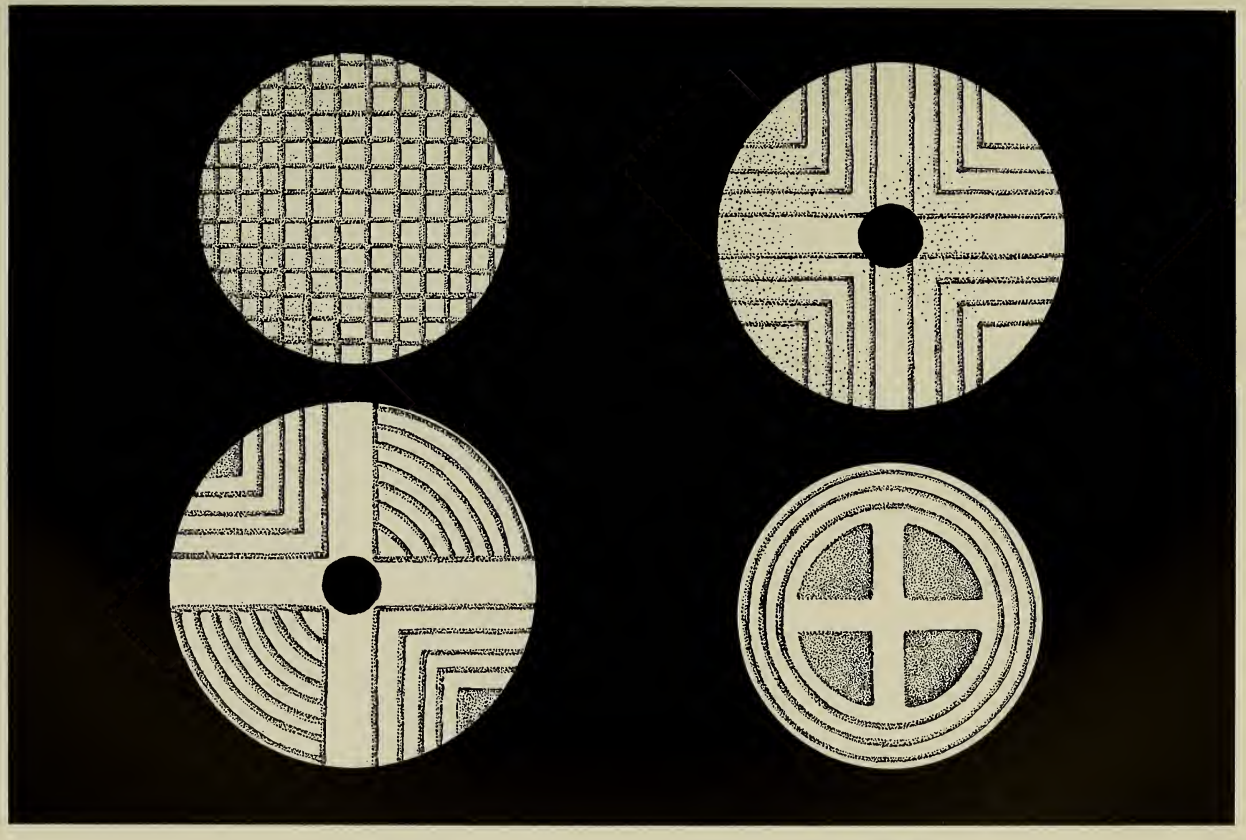
19/8081

18/6497
18/6522

PLATE XII

STONE EAR SPOOLS

18/6526. Diameter, $3\frac{1}{4}$ in.; thickness, $\frac{3}{4}$ in.
18/6524. Diameter, $3\frac{1}{4}$ in.; thickness, $\frac{3}{4}$ in.
18/6523. Diameter, $3\frac{3}{8}$ in.; thickness, $\frac{13}{16}$ in.
18/6552. Diameter, $2\frac{7}{8}$ in.; thickness, $\frac{3}{4}$ in.



18/6526 18/6524

18/6523 18/6552

PLATE XIII

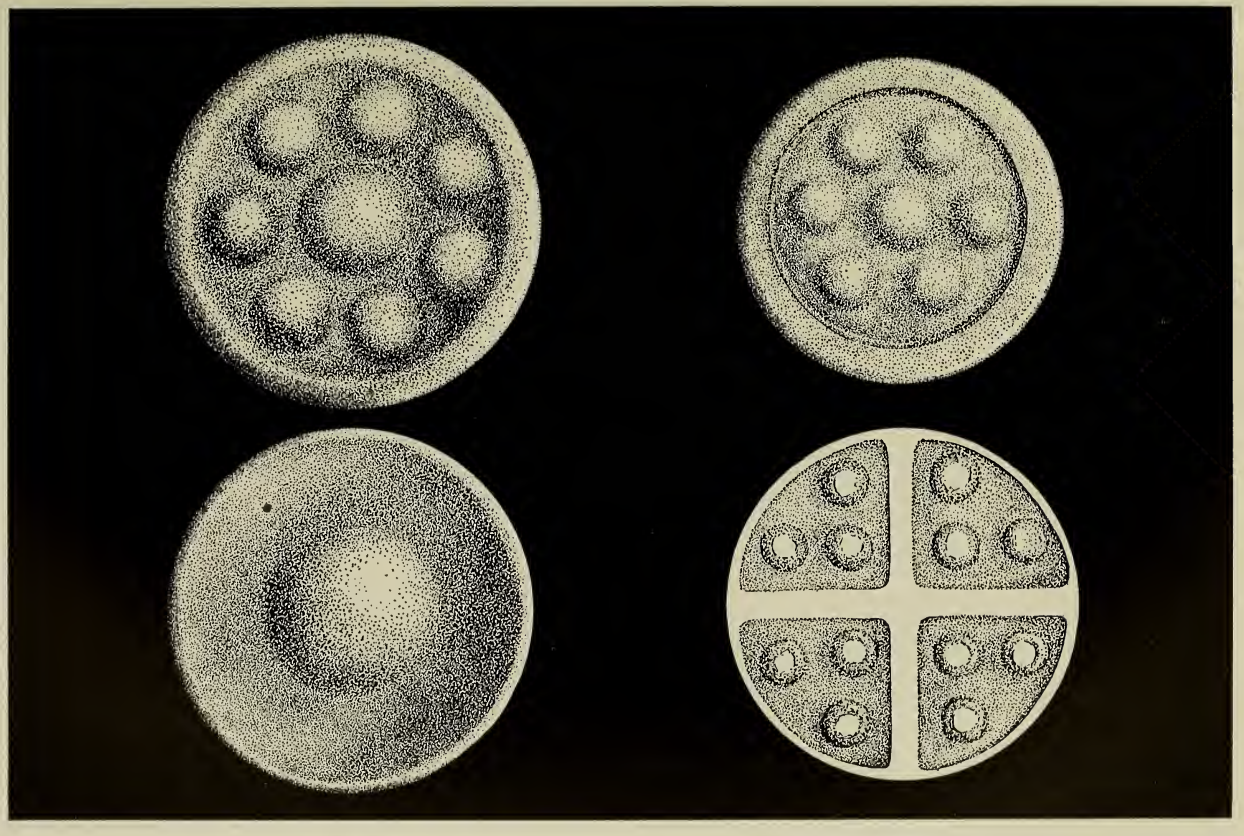
STONE EAR SPOOLS

18/6435. Diameter, $3\frac{1}{2}$ in.; greatest thickness, $\frac{7}{8}$ in.

20/681. Diameter, $2\frac{7}{8}$ in.; greatest thickness, $\frac{7}{8}$ in.

20/677. Diameter, $3\frac{3}{8}$ in.; thickness through center node, 1 in.

20/679. Diameter, $3\frac{1}{4}$ in.; greatest thickness, $\frac{7}{8}$ in.



18/6435 20/681

20/677 20/679

PLATE XIV

STONE EAR SPOOLS

a. 19/8083. Diameter, $2\frac{1}{8}$ in.
b. 18/6437. Diameter, $2\frac{1}{2}$ in.
c. 20/670. Diameter, $3\frac{1}{8}$ in.
d. 19/8082. Diameter, $2\frac{1}{16}$ in.
e. 20/667. Diameter, $2\frac{1}{4}$ in.
f. 18/6436. Diameter, $3\frac{3}{8}$ in.
g. 18/6525. Diameter, $2\frac{3}{4}$ in.
h. 19/1252. Diameter, $3\frac{1}{4}$ in.

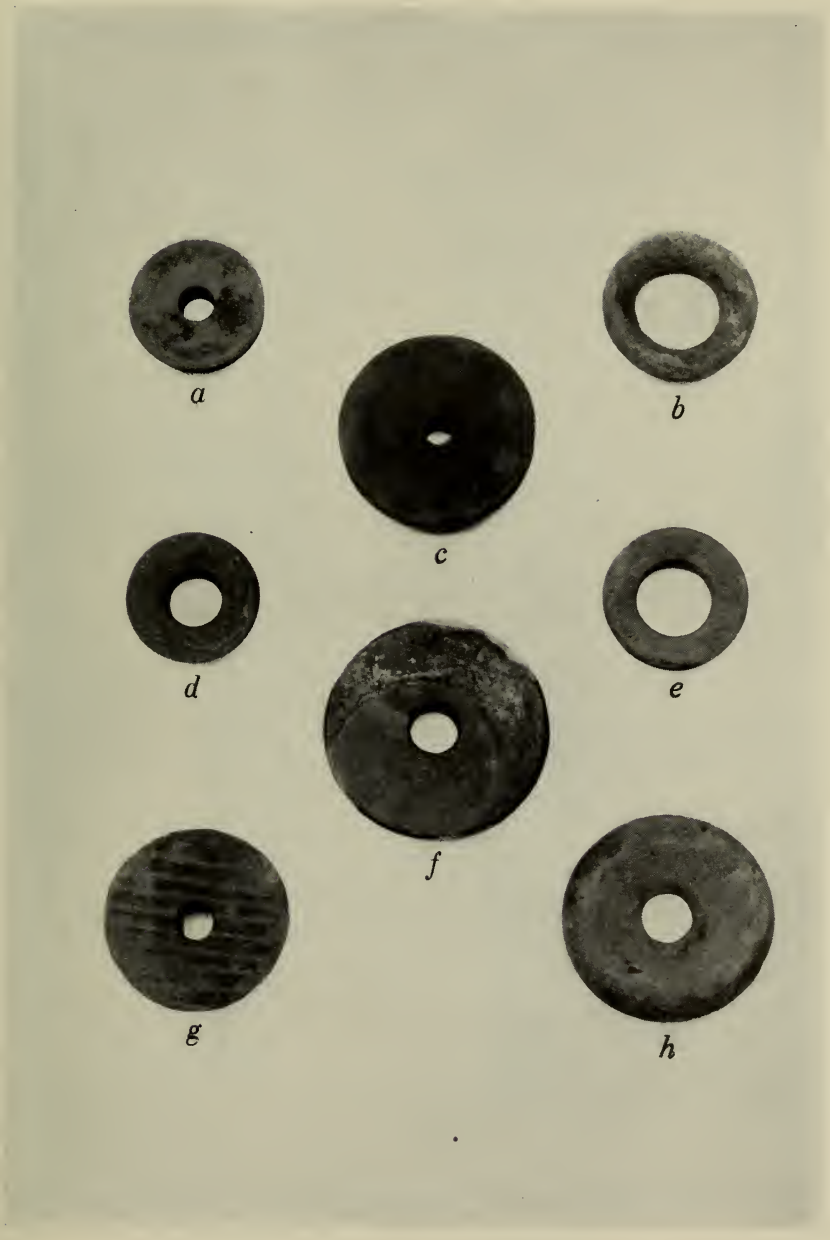

a
b
c
d
e
f
g
h

PLATE XV

CHIPPED STONE MACES

20/7100 (MAF.)

Length, 1 ft. 7 in.; width at rounded expansion, $3\frac{1}{2}$ in.

20/7099 (MAF.)

Length, 1 ft. $8\frac{1}{4}$ in.; width at upper points, $5\frac{1}{2}$ in.

20/7100 (MAF.) 20/7099 (MAF.)

PLATE XVI

CHIPPED STONE MACES

18/9335

Length, 1 ft. $1\frac{7}{8}$ in.; width at upper points, $4\frac{3}{8}$ in.

18/9334

Greatest length, 1 ft. $2\frac{1}{8}$ in.; greatest width, $5\frac{3}{8}$ in.

18/9335 18/9334

PLATE XVII

STONE BATONS OR SPUDS

20/866

Length, 1 ft. 10½ in.; width at points, 4½ in.

20/7101 (MAF.)

Length, 1 ft. 11½ in.; width at points, 4½ in.

20/755

Length, 1 ft. 10½ in.; width at points, 5 in.

20/866 20/7101 (MAF.) 20/755

PLATE XVIII

STONE BATON OR SPUDS

20/756

Length, 1 ft. 4 in. width at points, $3\frac{7}{8}$ in.

20/761

Length, 1 ft. $6\frac{1}{4}$ in.; width at points, $3\frac{1}{4}$ in.

20/757

Length, $12\frac{3}{4}$ in.; width at points, $3\frac{3}{8}$ in.

20/756 20/761 20/757

PLATE XIX

STONE BATONS OR SPUDS, GORGET

20/759

Length, 8 in.; width at points, $2\frac{1}{2}$ in.

20/758

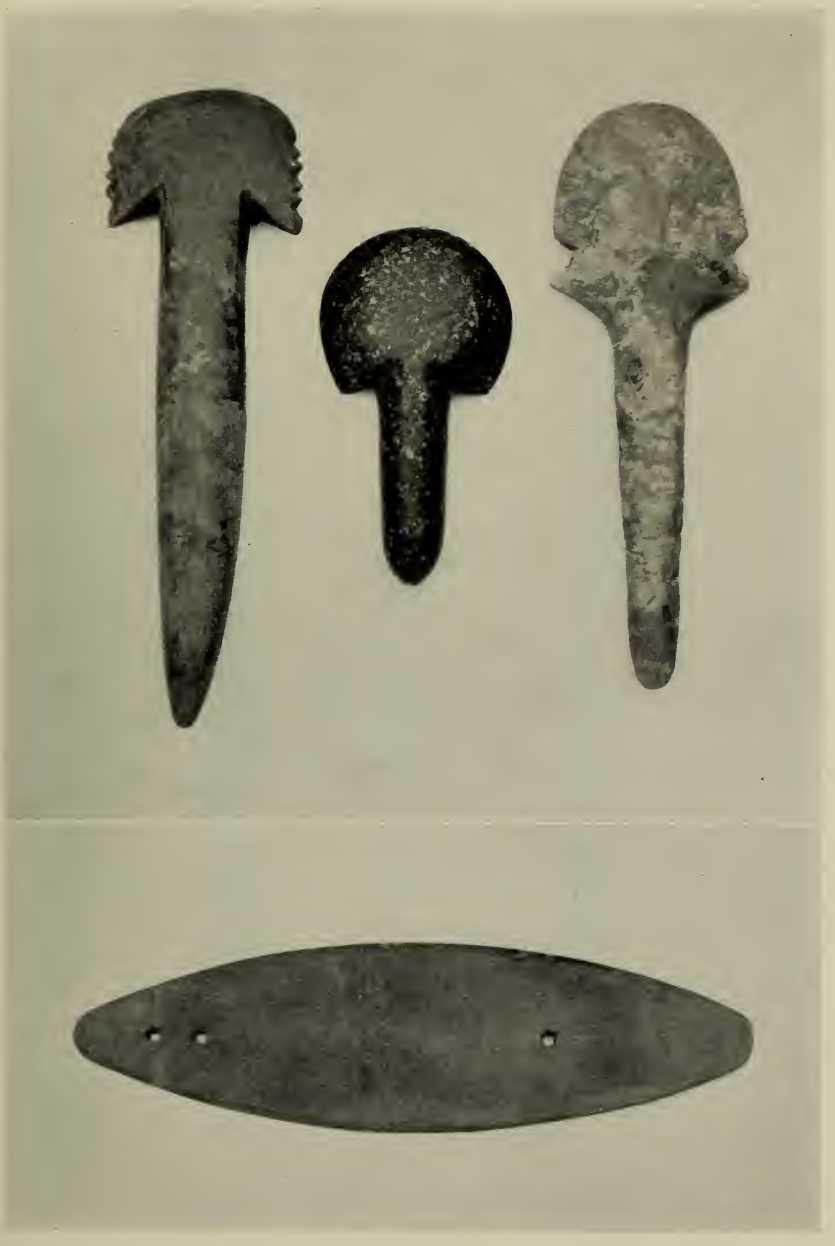
Length, $4\frac{1}{2}$ in.; greatest width of head, $2\frac{1}{2}$ in.

20/760

Length, $7\frac{3}{8}$ in.; width at points, $2\frac{1}{2}$ in.

18/9116

Length, $9\frac{3}{4}$ in.



20/759 20/758 20/760
18/9116

PLATE XX

STONE BATONS

20/7097 (MAF.)

Length: left, 1 ft. $8\frac{3}{4}$ in.; right, 1 ft. $8\frac{5}{8}$ in.

20/7102 (MAF.)

Length, 1 ft. $7\frac{1}{8}$ in.; greatest width, $4\frac{7}{16}$ in.

20/7097 (MAF.) 20/7102 (MAF.) 20/7097 (MAF.)

PLATE XXI

MONOLITHIC AXES

20/7103 (MAF.)

Length, $11\frac{5}{8}$ in.

20/754

Length, $11\frac{3}{8}$ in.

20/7103 (MAF.)

20/754

PLATE XXII

STONE CHISELS

a. 20/765. Length, $4\frac{1}{2}$ in.
b. 20/763. Length, $11\frac{3}{4}$ in.
c. 20/764. Length, $12\frac{3}{8}$ in.
d. 20/762. Length, $12\frac{7}{8}$ in.
e. 20/753. Length, $10\frac{1}{8}$ in.
f. 20/7108 (MAF.). Length, $6\frac{1}{4}$ in.
g. 20/751. Length, $9\frac{3}{8}$ in.
h. 20/752. Length, 1 ft. 1 in.
i. 20/750. Length, 1 ft. $7\frac{1}{4}$ in.

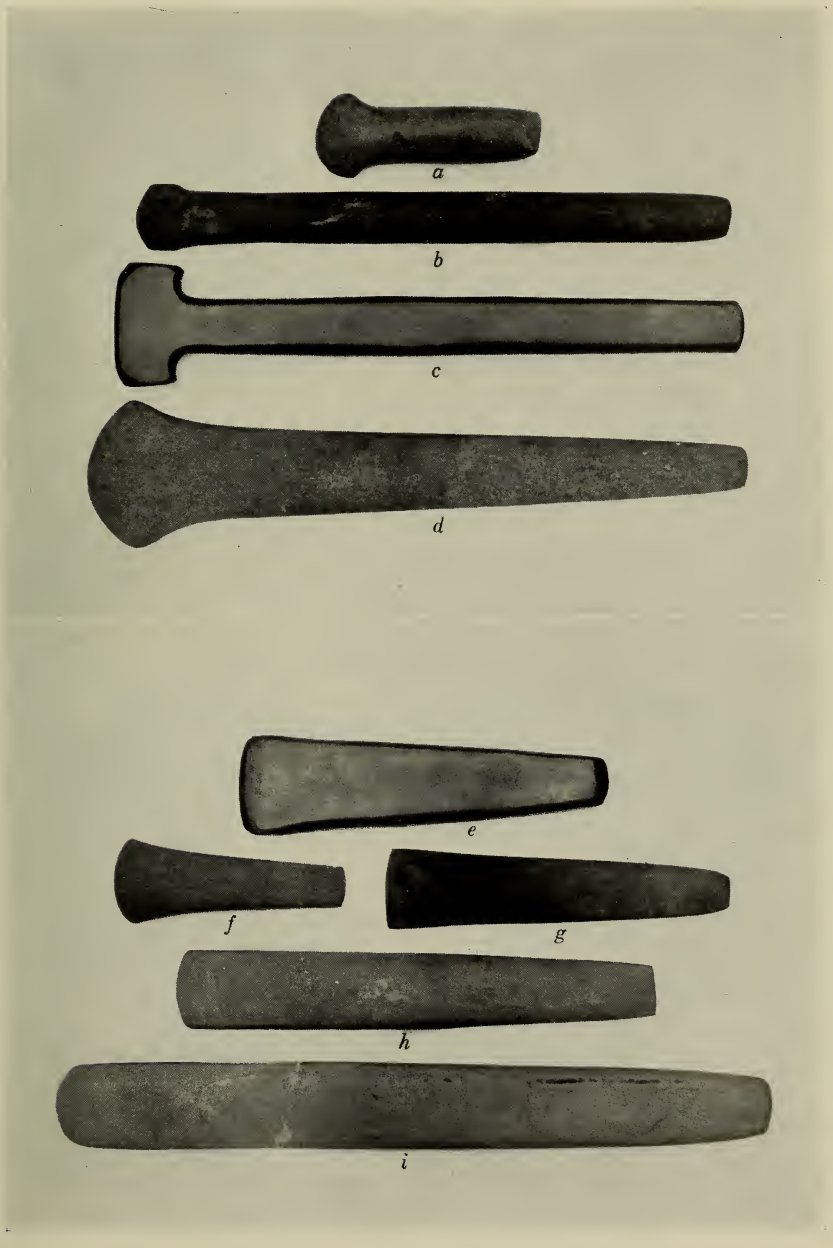

a
b
c
d
e
f
g
h
i

PLATE XXIII

STONE DISCOIDALS AND BOWL

18/9330

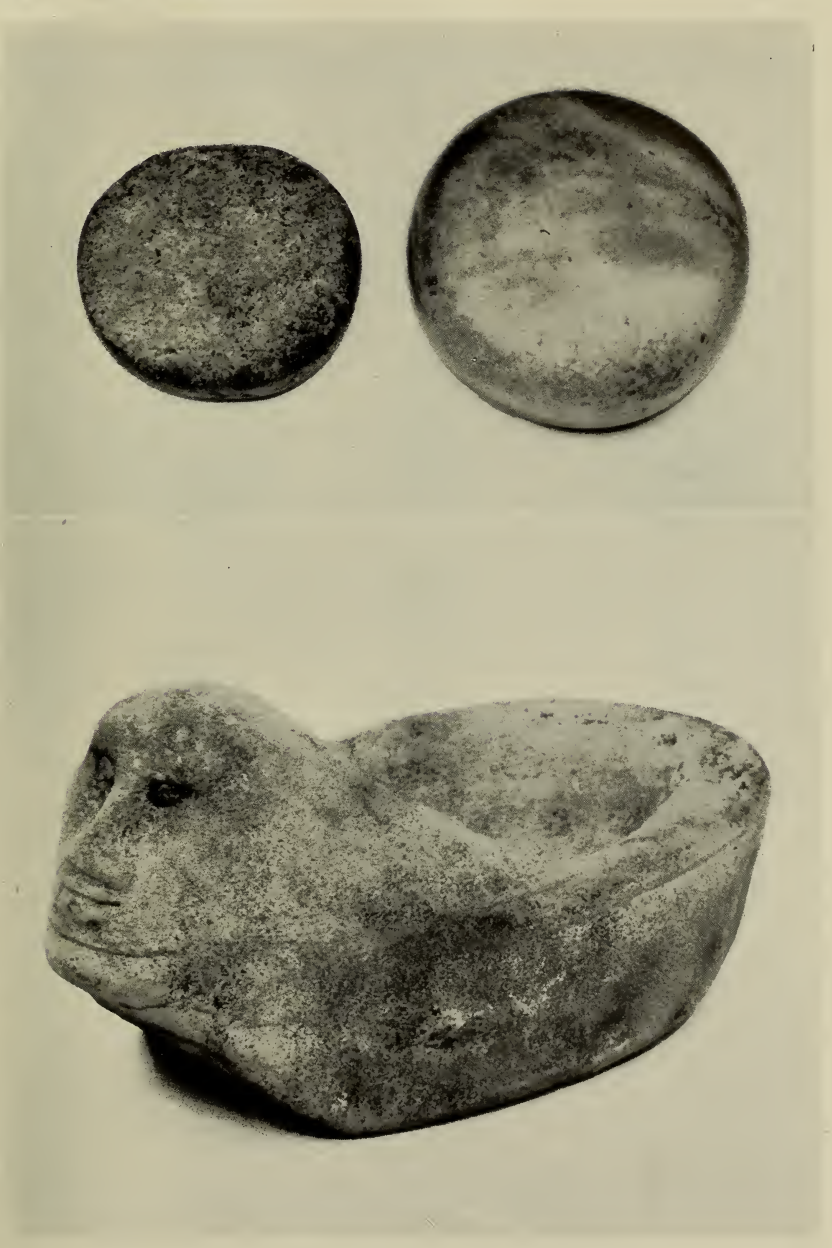
Diameter, $3\frac{3}{4}$ in.; thickness at center, $1\frac{1}{8}$ in.

20/7121 (MAF.)

Diameter, $4\frac{3}{4}$ in.; thickness at center, $2\frac{1}{8}$ in.

20/743

Length, $9\frac{5}{8}$ in.



18/9330 20/743 20/7121 (MAF.)

PLATE XXIV

STONE BEADS: POTTERY SPINDLE WHORL

a. 18/9329. Length, $3\frac{3}{8}$ in.
b. 20/696. Diameter, $1\frac{11}{16}$ in.
c. 20/687. Length, $1\frac{3}{4}$ in.
d. 18/6529. Diameter, $1\frac{5}{8}$ in.
e. 20/690. Diameter, $\frac{7}{8}$ in.
f. 20/689. Length, $1\frac{1}{8}$ in.
g. 20/740. Diameter, $2\frac{1}{4}$ in.
h. 20/688. Length, $2\frac{1}{8}$ in.
i. 19/8084. Length along inner arc, $4\frac{1}{2}$ in.


a
b
c
d
e
f
g
h
i

PLATE XXV

STONE BEADS

a. 18/7081. Length: upper one, roughly $\frac{7}{8}$ in.
lower one, roughly $1\frac{1}{2}$ in.

b. 18/6427. Left: diameter, $1\frac{1}{2}$ in.; thickness, $\frac{7}{8}$ in.
Right: diameter, $1\frac{1}{4}$ in.; thickness, $\frac{3}{4}$ in.

c. 18/6553. Length, $1\frac{3}{8}$ in.; diameter, $\frac{3}{4}$ in.

d. 20/694. Length, average, $\frac{3}{4}$ in.; diameter, $\frac{1}{2}$ in.

e. 20/695. Length, $2\frac{7}{8}$ in.; diameter, $\frac{3}{4}$ in.

f. 18/6430. Length, $1\frac{5}{8}$ in.; diameter, 1 in.

g. 18/6429. Length, $1\frac{5}{8}$ in.; diameter, 1 in.

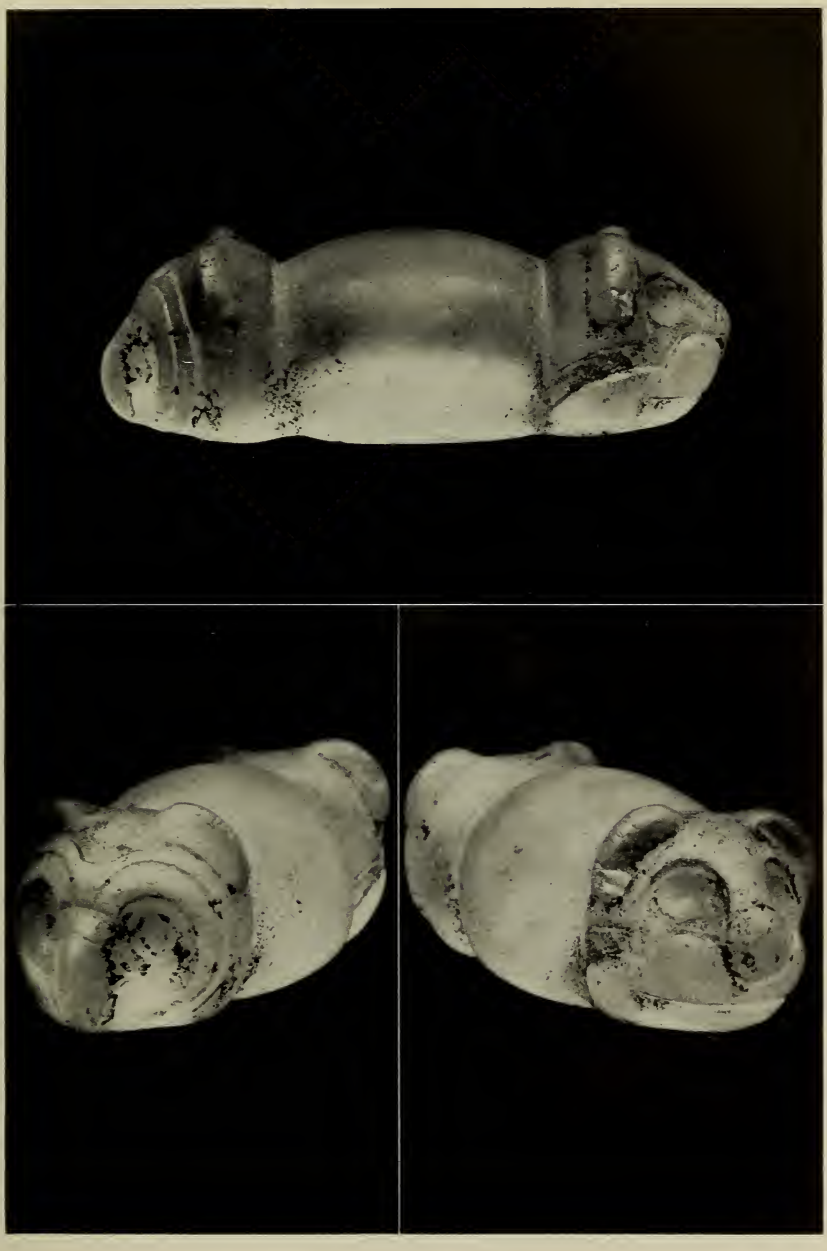

a
b
c
b
d
a
d
e
f
g

PLATE XXVI

ROCK CRYSTAL BOAT STONE

18/9113

Length, $3\frac{1}{2}$ in.



18/9113

18/9083. Length, 12½ in.

18/9083

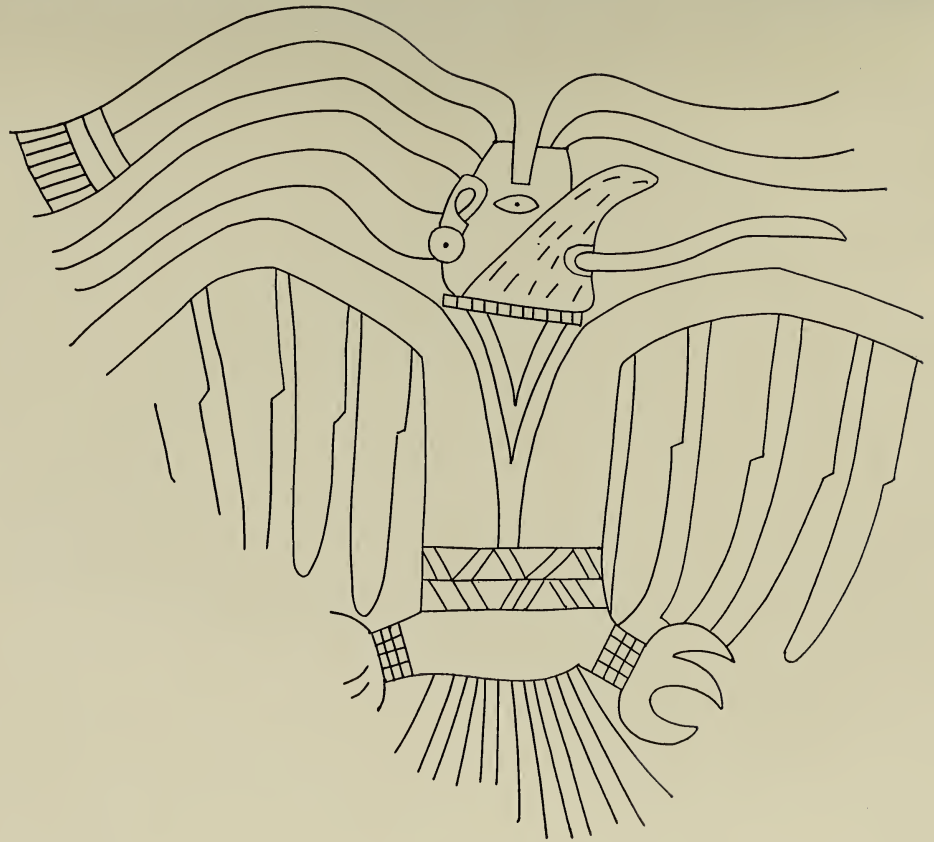
18/9121. Length, 13 in.

18/9121

18/9309. Length, 13¼ in.

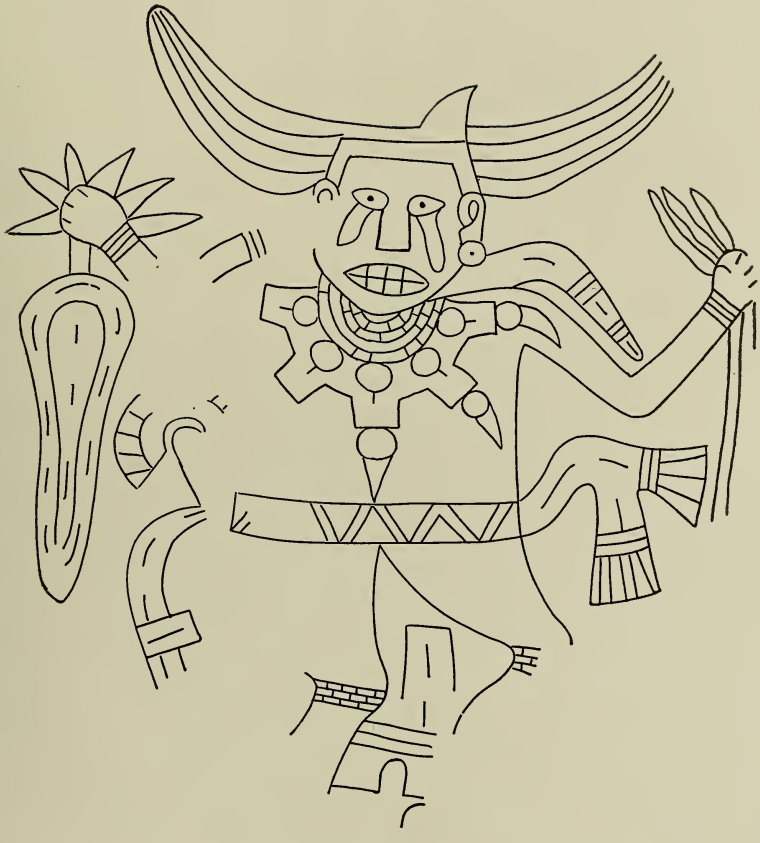
18/9309

18/9125. Length, 10⅛ in.



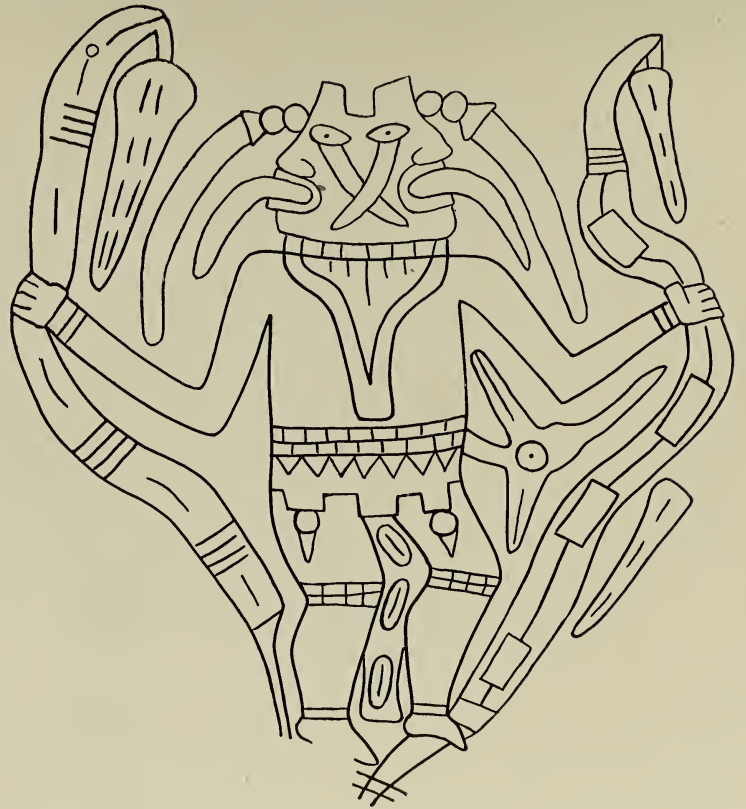
18/9125.

18/9127. Length, 10¼ in.



18/9127

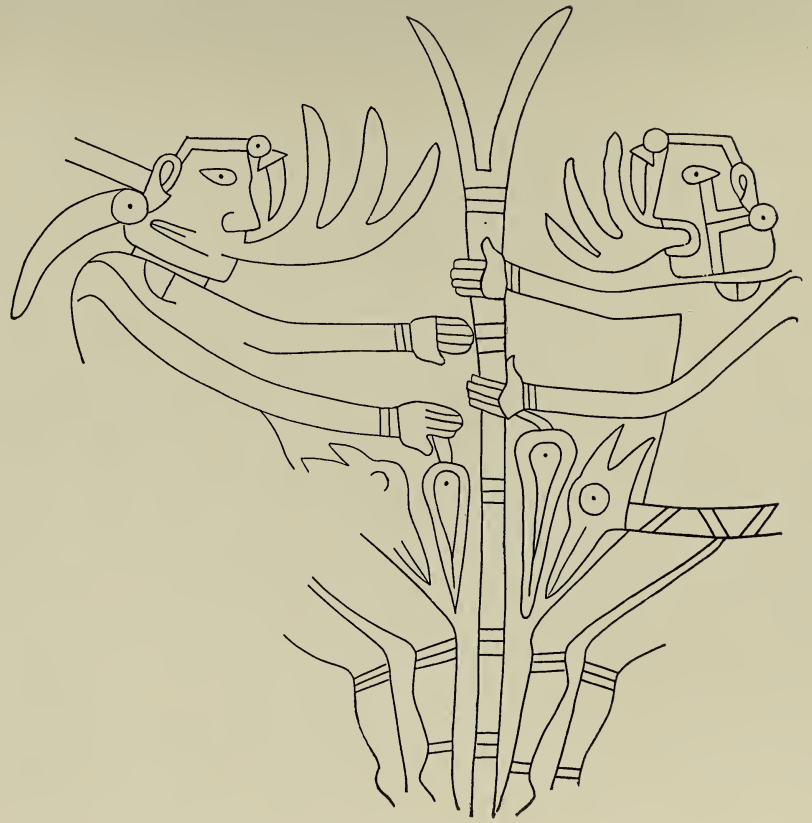
18/9122. Length, 11½ in.



18/9122

18/9118. Remaining length, 7 in.

18/9123. Length, 11¾ in.

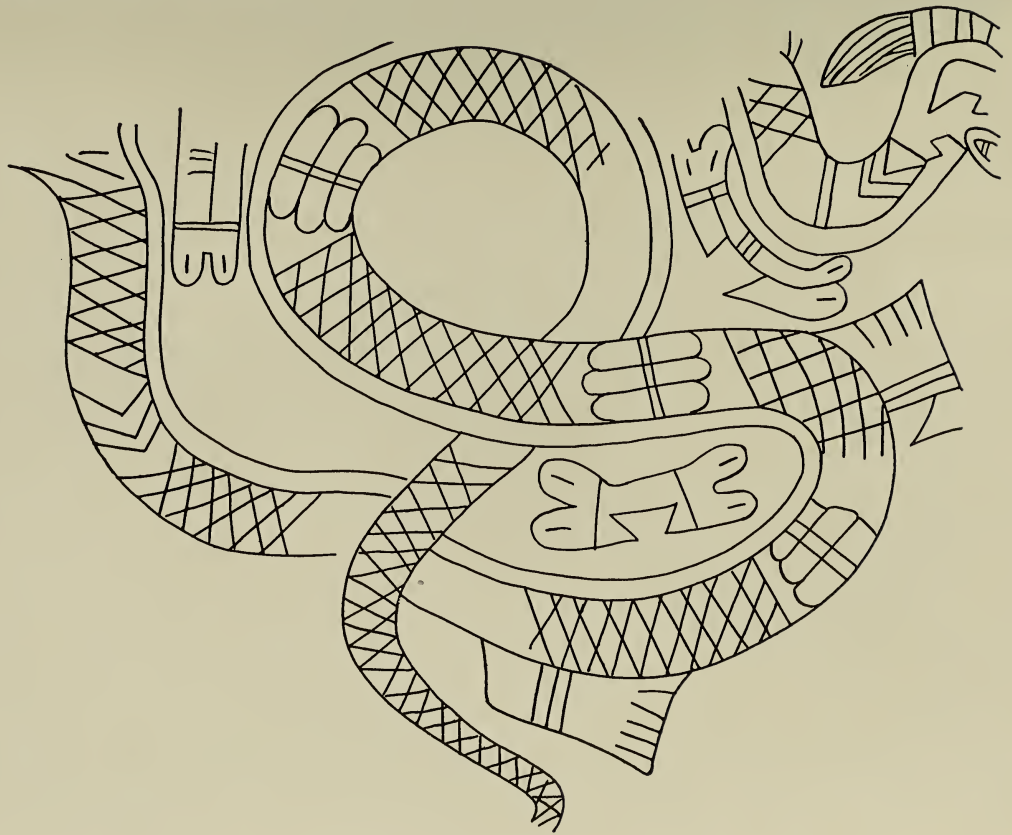


18/9123

18/9310. Length, 12¼ in.

18/9310

18/9082. Length, 9¼ in.



18/9082

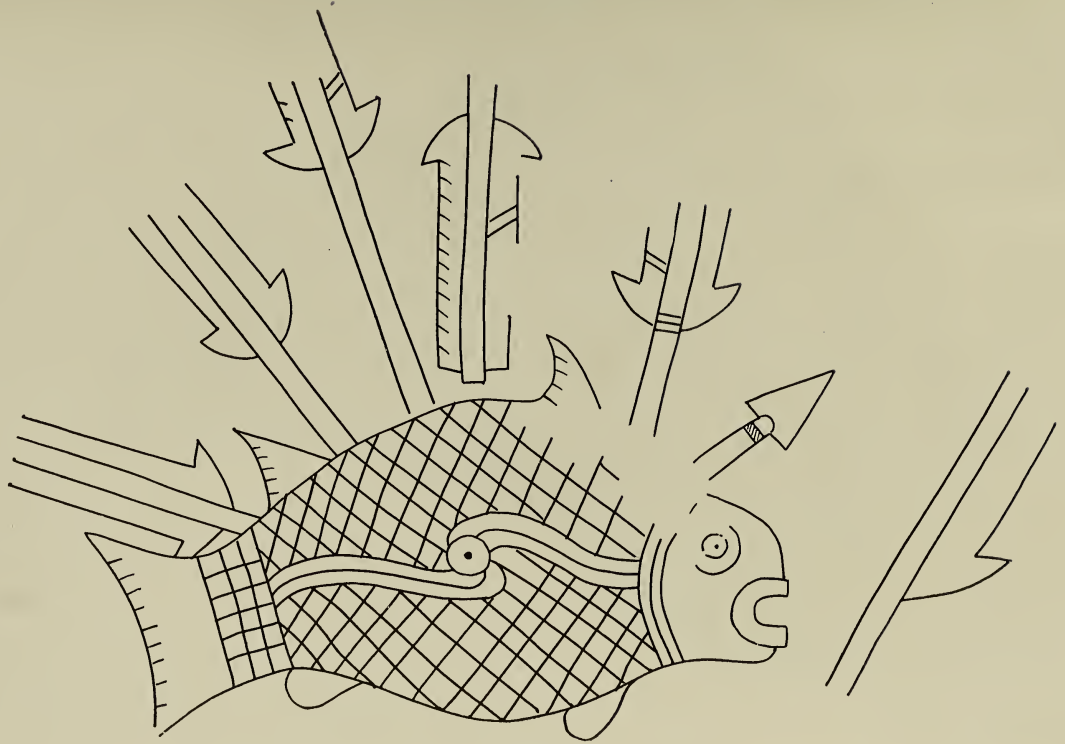
18/9126. Length, 13⅝ in.

18/9126

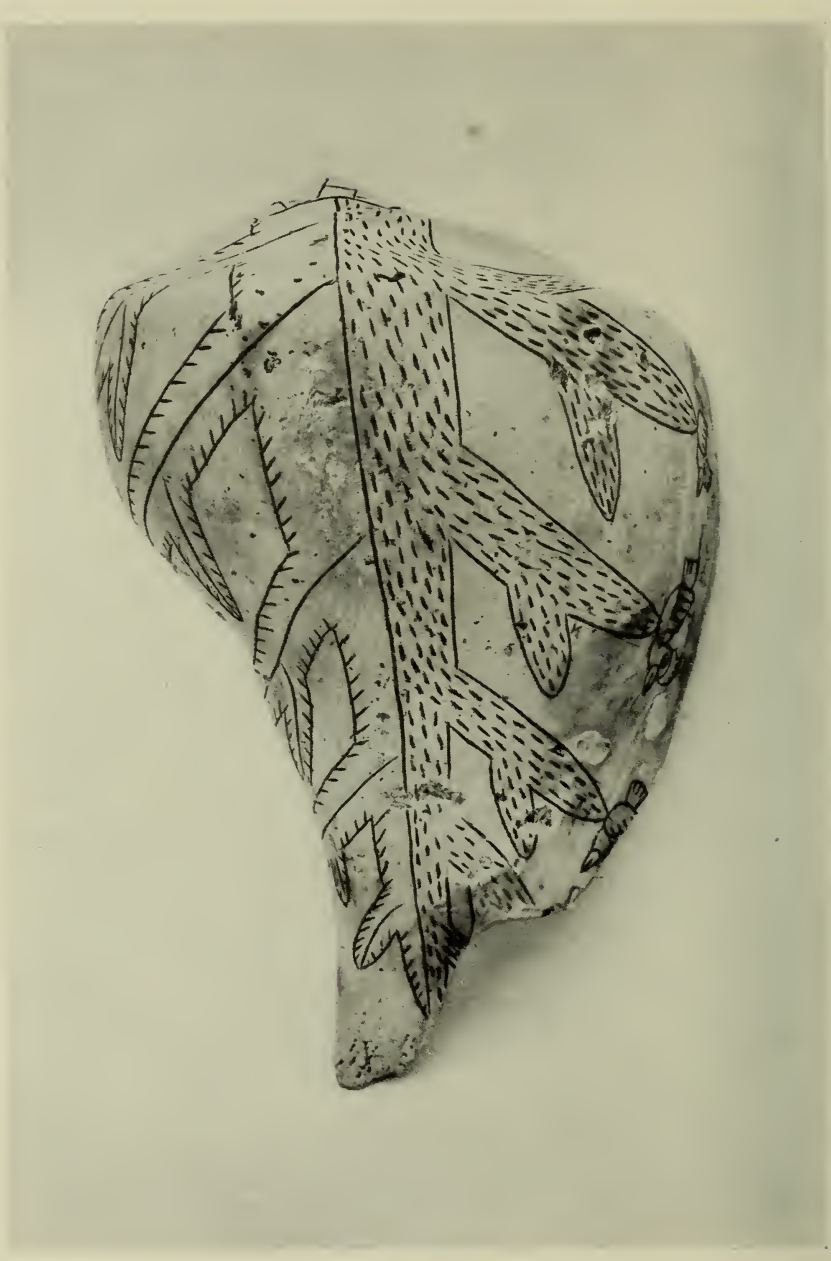
18/9124. Length, 8¼ in.

18/9124

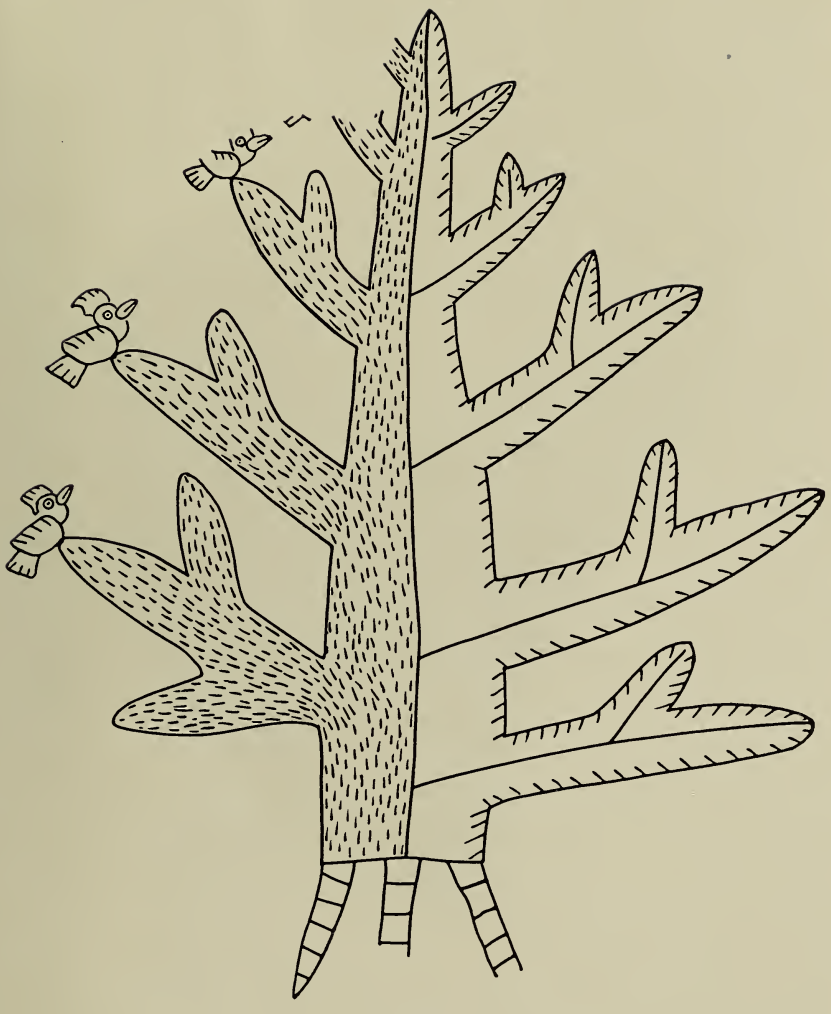
18/9308. Length, 10 in.



18/9308

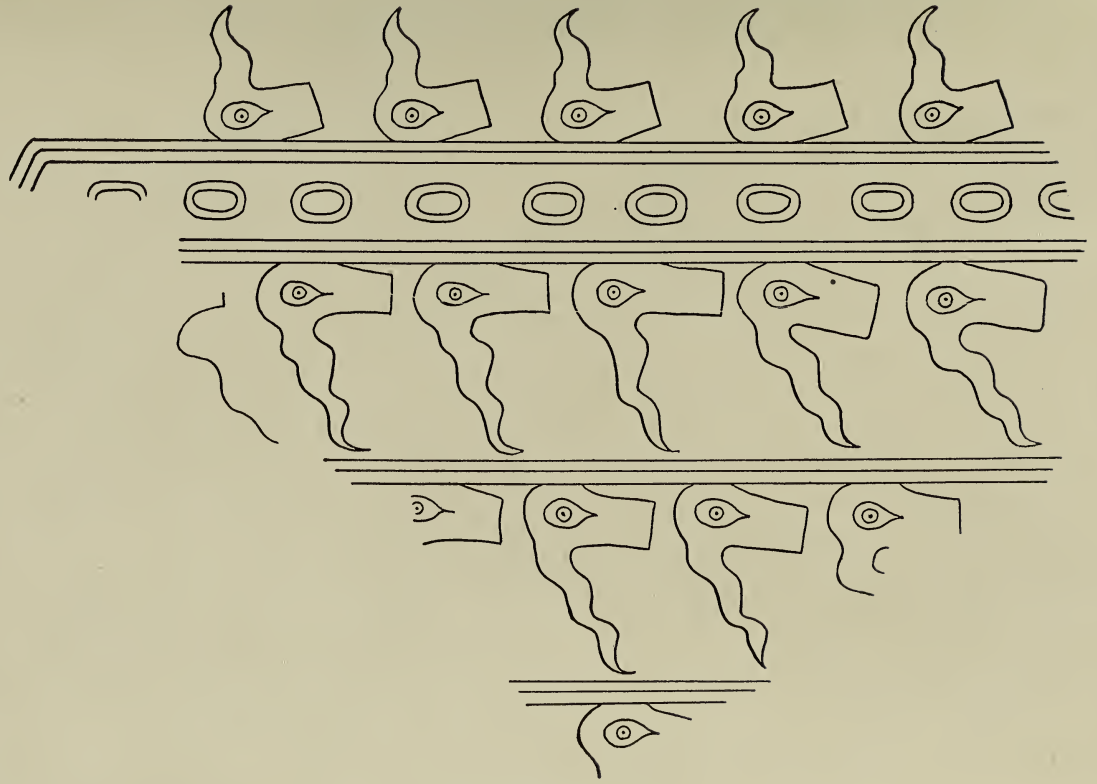


18/9120. Length, 10¼ in.

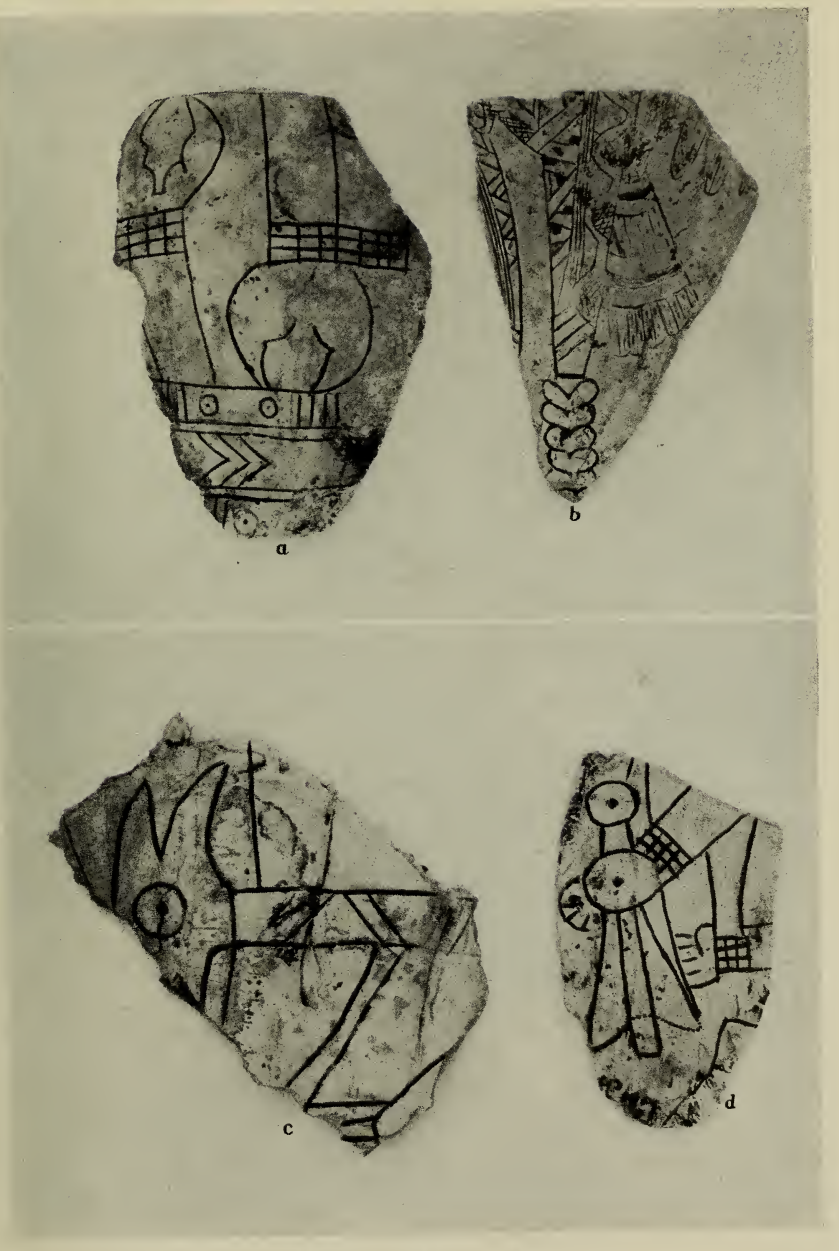


18/9120

18/9119. Length, 10⅜ in.



18/9074. Length, 8⅜ in.



All 18/9074. Length of *a*, 5⅞ in.

PLATE LIX

SHELL GORGET

18/9084

Diameter, $4\frac{3}{4}$ in.

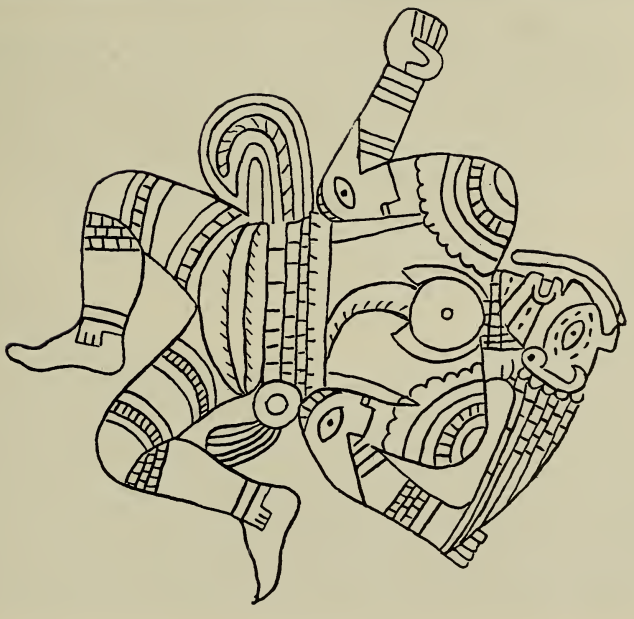
18/9084

PLATE LX

SHELL GORGET

18/9085

Diameter, 5 in.



18/9085

18/9086. Diameter, 6 in.

18/9086

PLATE LXIII

SHELL GORGET

18/7913

Diameter, $3\frac{3}{4}$ in.

18/7913

PLATE LXIV

SHELL GORGETS

18/7915

Diameter, 2¼ in.

18/7914

Diameter, 3⅛ in.

18/7915

18/7914

PLATE LXV

SHELL HUMAN FIGURE

18/7897

Height, 5 in.

18/7897

PLATE LXVI

MISCELLANEOUS

18/9087

Length: left, $8\frac{3}{4}$ in.; right, $8\frac{1}{4}$ in.

18/9327

Greatest length, 2 in.

20/720

Greatest length, $6\frac{1}{4}$ in.

18/9087 18/9327 18/9087

20/720

PLATE LXVII

WORKED SHELL

18/9081

Length of drilled ridge, $6\frac{3}{4}$ in.

18/9080

Length of scalloped arc, $8\frac{1}{2}$ in.

18/9081

18/9080

PLATE LXVIII

SHELL BEADS AND PENDANTS

a. 20/726.	Greatest diameter, $\frac{1}{2}$ in.
b. 20/721.	Greatest length, $\frac{5}{8}$ in.
c. 20/725.	Length, $\frac{3}{4}$ in.
d. 20/724.	Length: left, $1\frac{1}{2}$ in.; right, $1\frac{3}{8}$ in.
e. 20/732.	Average length, $\frac{3}{4}$ in.
f. 20/722.	Length, $3\frac{7}{8}$ in.
g. 20/733.	Average length, $\frac{5}{8}$ in.
h. 20/734.	Average diameter, $\frac{7}{8}$ in.
i. 20/7116 (MAF.).	Length ranges, from $1\frac{1}{8}$ in. to $1\frac{5}{8}$ in.
j. 20/727.	Length, $1\frac{1}{4}$ in.
k. 20/730.	Overall length, $2\frac{1}{8}$ in.
l. 20/731.	Length ranges, from 1 in to $2\frac{3}{4}$ in.
m. 18/9078.	Diameter, $\frac{3}{4}$ in.
n. 18/9313.	Average length, $1\frac{1}{2}$ in.


a
b
c
d
e
f
e
d
g
h
i
j
k
l
m
l
n

PLATE LXIX

SHELL BEADS

a. 18/9316. Length, $\frac{3}{4}$ in.
b. 18/9315. Average diameter, $\frac{3}{4}$ in.
c. 18/9314. Length ranges, from $1\frac{1}{8}$ in. to $2\frac{1}{8}$ in.
d. 18/9079. Length, $1\frac{7}{8}$ in.
e. 18/9076. Length ranges, from $\frac{7}{16}$ in. to $1\frac{1}{8}$ in.
f. 18/9075. Length ranges, from $\frac{3}{8}$ in. to $\frac{1}{2}$ in.
g. 18/9313. Average length, $\frac{1}{2}$ in.


a
b
b
c
d
c
e
f
g

PLATE LXX

CACHE OF HAFTED COPPER AXES

18/9077

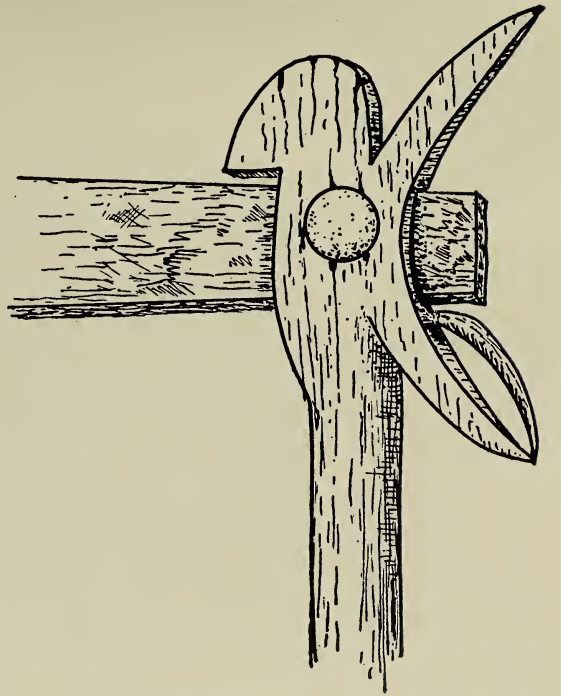
18/9077

PLATE LXXI

HAFTED COPPER AXES FROM CACHE

18/9077

Length of longest handle, 1 ft. 5 in.



18/9077

PLATE LXXII

COPPER AXE HEADS

20/7115 (MAF.)

Length, 6¼ in.; weight, 8 lb. 8 oz.

20/7114 (MAF.)

Length, 6⅜ in.; weight, 4 lb. 4 oz.

20/7115 (MAF.)

20/7114 (MAF.)

PLATE LXXIII

COPPER PLUMES

20/705

Greatest remaining length, $10\frac{1}{8}$ in.

20/706

Greatest remaining length, $10\frac{5}{8}$ in.

20/705 20/706

PLATE LXXIV

EMBOSSED COPPER SHEET

18/9332

Greatest remaining length, 8 in.

18/9332

PLATE LXXV

EMBOSSED COPPER SHEETS

20/699

Length, $8\frac{7}{8}$ in.

20/700

Length, $9\frac{1}{2}$ in.

20/699 20/700

20/699 20/700

PLATE LXXVI

EMBOSSED COPPER SHEET

20/701

Greatest dimension, $13\frac{3}{8}$ in.

20/701

PLATE LXXVII

WOODEN MASK

18/9306

Overall height, $11\frac{3}{8}$ in.

18/9306

PLATE LXXVIII

MINIATURE WOODEN MASKS

All 18/9117

Heights, *3*, $2\frac{1}{4}$ in.; 1, $2\frac{3}{8}$ in.

All 18/9117

PLATE LXXIX

WOODEN RATTLE, COPPER COVERED

18/9307

Overall length, $6\frac{7}{8}$ in.

18/9307

PLATE LXXX

WOODEN BLADES, COPPER COVERED

18/9333

Length, $12\frac{1}{8}$ in.

20/704

Length, 12 in.

20/703

Length, $10\frac{3}{8}$ in.

18/9333 20/704 20/703

PLATE LXXXI

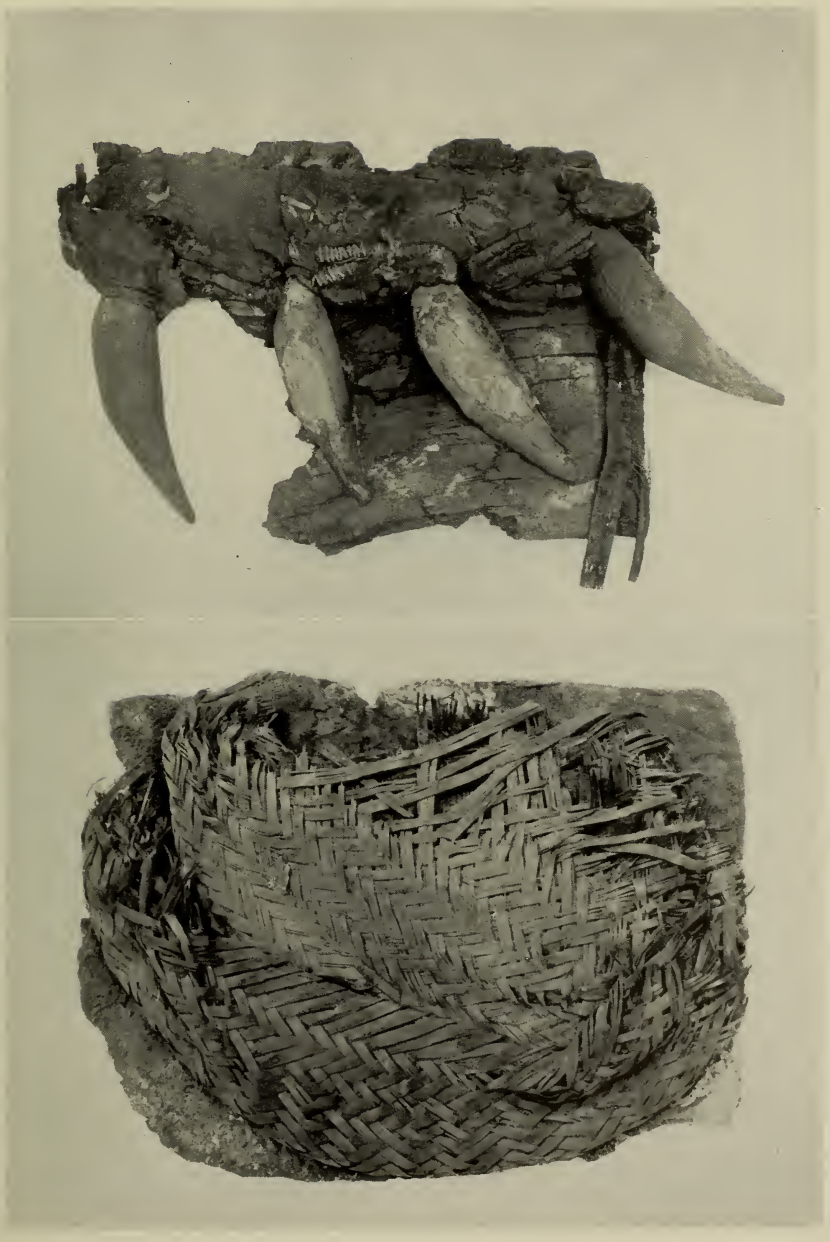
OBJECTS FROM HEADDRESS BUNDLE

18/9312 G

Remaining width of band, 4 in.

18/9312 A, B

Size of copper plate, 6 in. × 8 in.



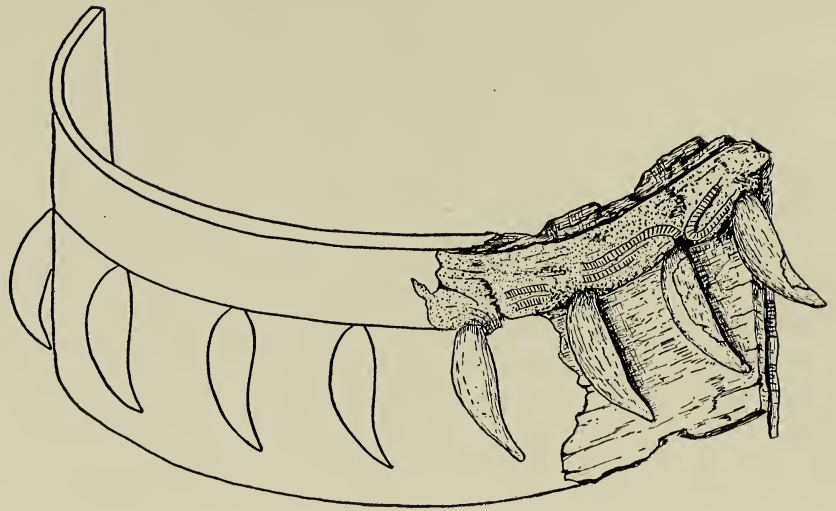
18/9312 G

18/9312 A, B

PLATE LXXXII

SUGGESTED RESTORATION OF DECORATED HEAD BAND

18/9312 G



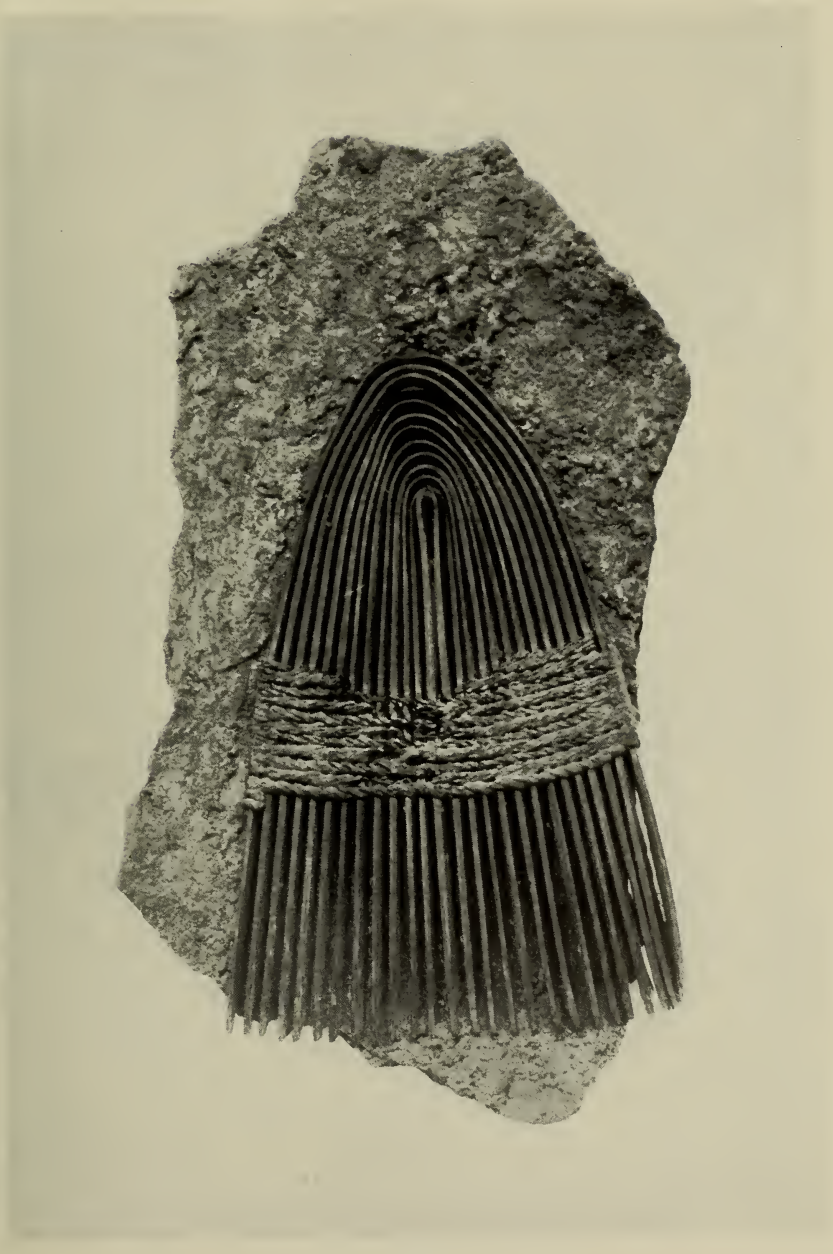
18/9312 G

PLATE LXXXIII

CANE COMB AND COPPER PLATE

18/9331

Length of comb, $3\frac{3}{4}$ in.; greatest width, $2\frac{1}{2}$ in.; width of splints, $\frac{3}{16}$ in.



18/9331

PLATES LXXXIV

BEAD BUNDLE

18/9311

18/9311

PLATE LXXXV

MISCELLANEOUS OBJECTS OF WOOD AND BONE

18/9115

PENDANT IN FORM OF SNAKE RATTLE

Length, $2\frac{7}{8}$ in.

18/6554

BEAR TOOTH PENDANT, COPPER COVERED

Length, 3 in.

18/9114

INLAID WOODEN BEAD

Length, 4 in.

18/9323

HOLLOW WOODEN CONE

Length, $2\frac{3}{4}$ in.; greatest diameter, $2\frac{1}{8}$ in.

18/9115

18/9114

18/6554

18/9323

PLATE LXXXVI

WOODEN EAR SPOOLS

a. 18/9324. Diameter, $1\frac{7}{8}$ in.; greatest thickness, $1\frac{3}{8}$ in.
b. 18/9325. Diameter, $2\frac{1}{8}$ in.
c. 18/9326. Diameter, $1\frac{7}{8}$ in.
d. 18/7077. Greatest remaining diameter, $2\frac{1}{2}$ in.
e. 18/7078. Greatest remaining diameter, $3\frac{1}{8}$ in.

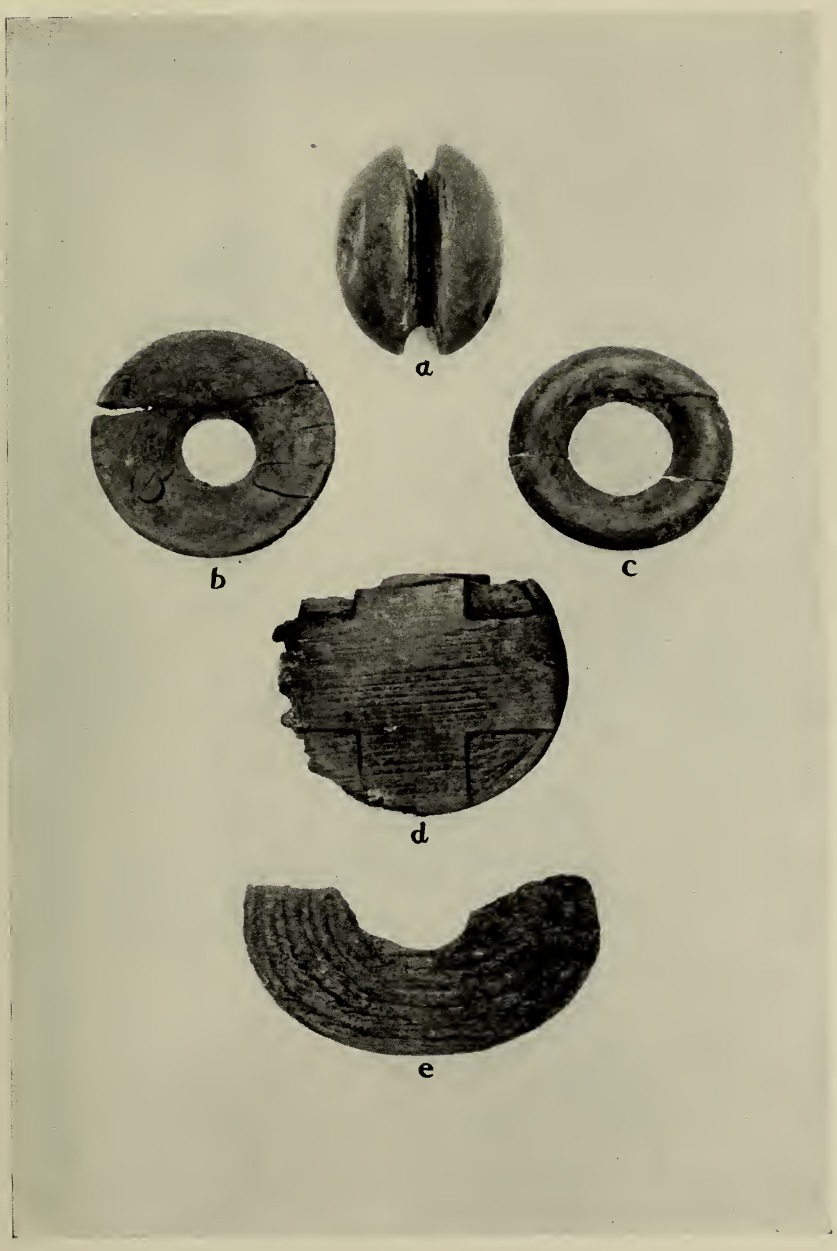

a
b
c
d
e

PLATE LXXXVII

POTTERY VESSELS

20/742

Height, 9¼ in.; diameter of lobes, 3¼ in.

20/741

Height, 5⅝ in.

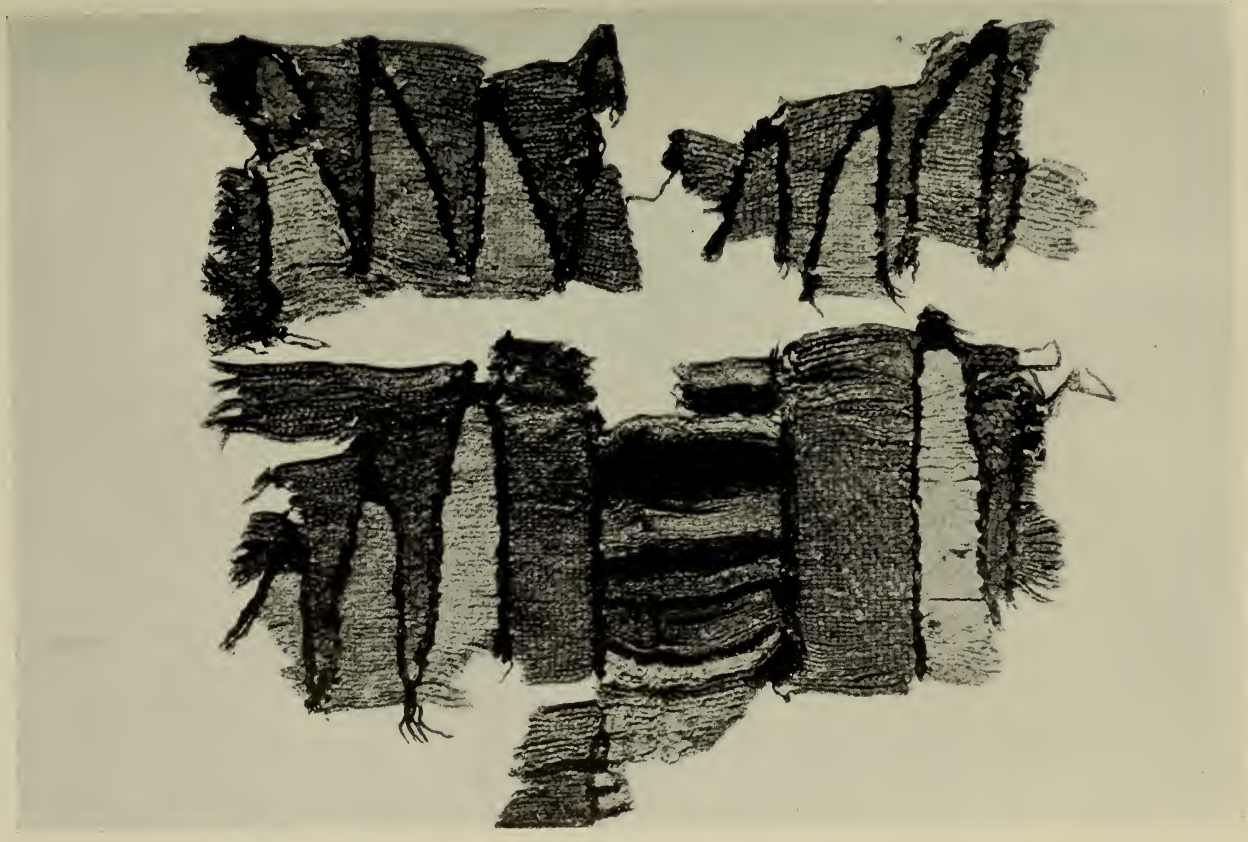
20/742 20/741

PLATE LXXXVIII

WOVEN TEXTILE

18/9351

Length of largest fragment, 12½ in.



18/9351

PLATE LXXXIX

WOVEN TEXTILE

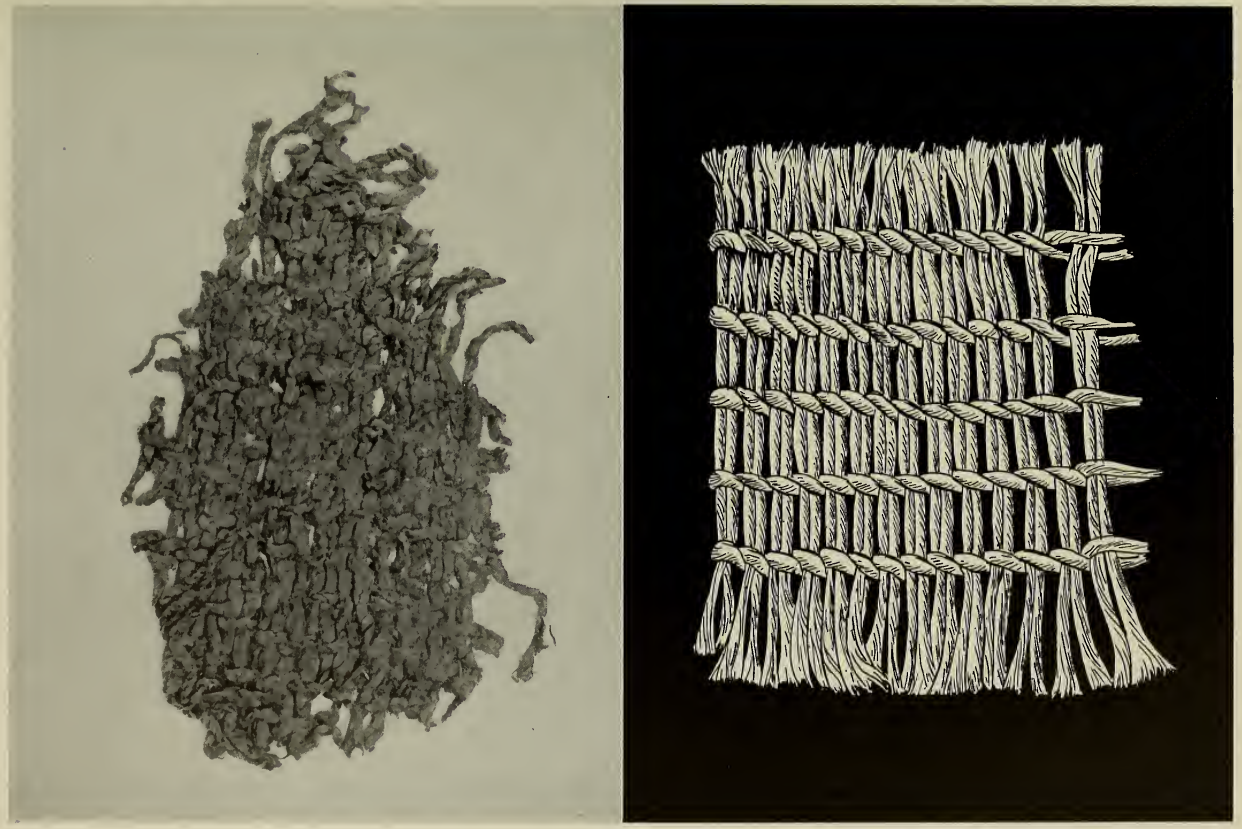
18/9312 D

18/9312 D

PLATE XC

WOVEN TEXTILE

18/9350

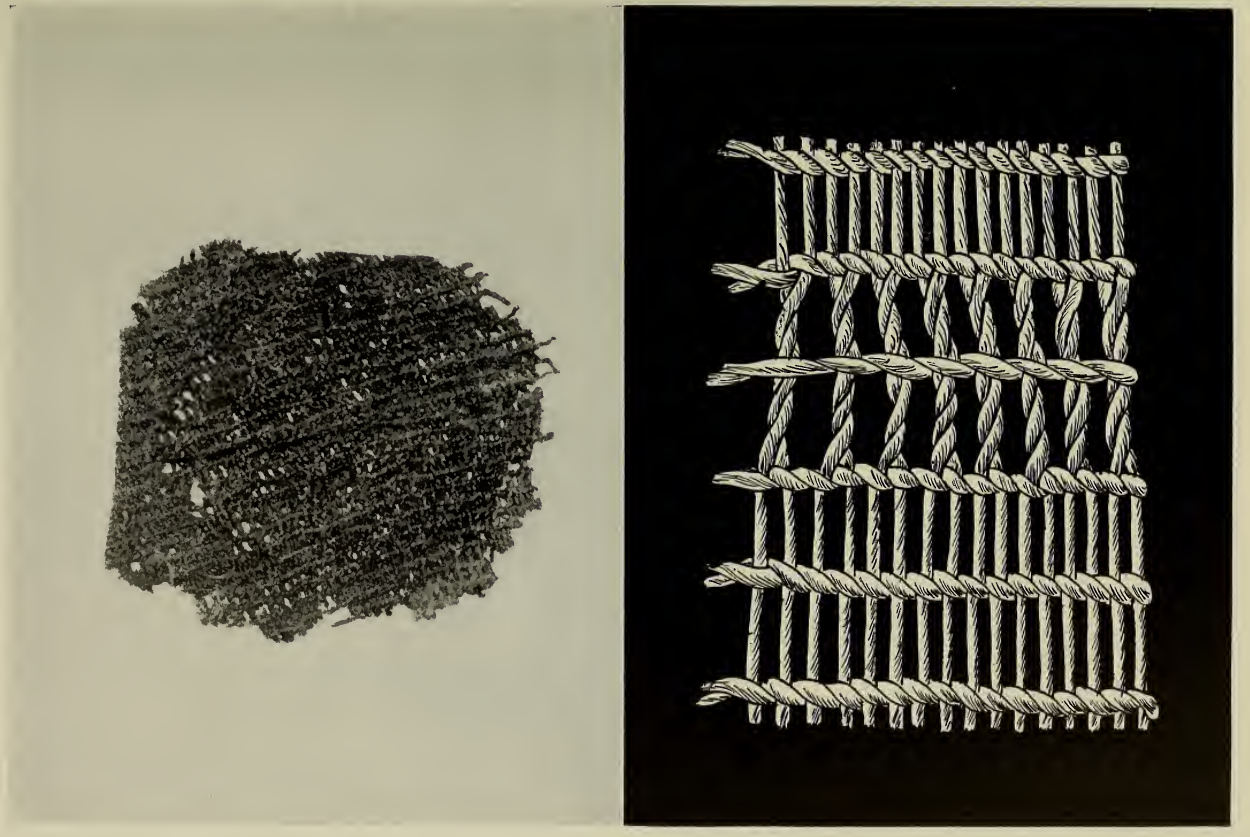


18/9350

PLATE XCI

WOVEN TEXTILE

18/7899



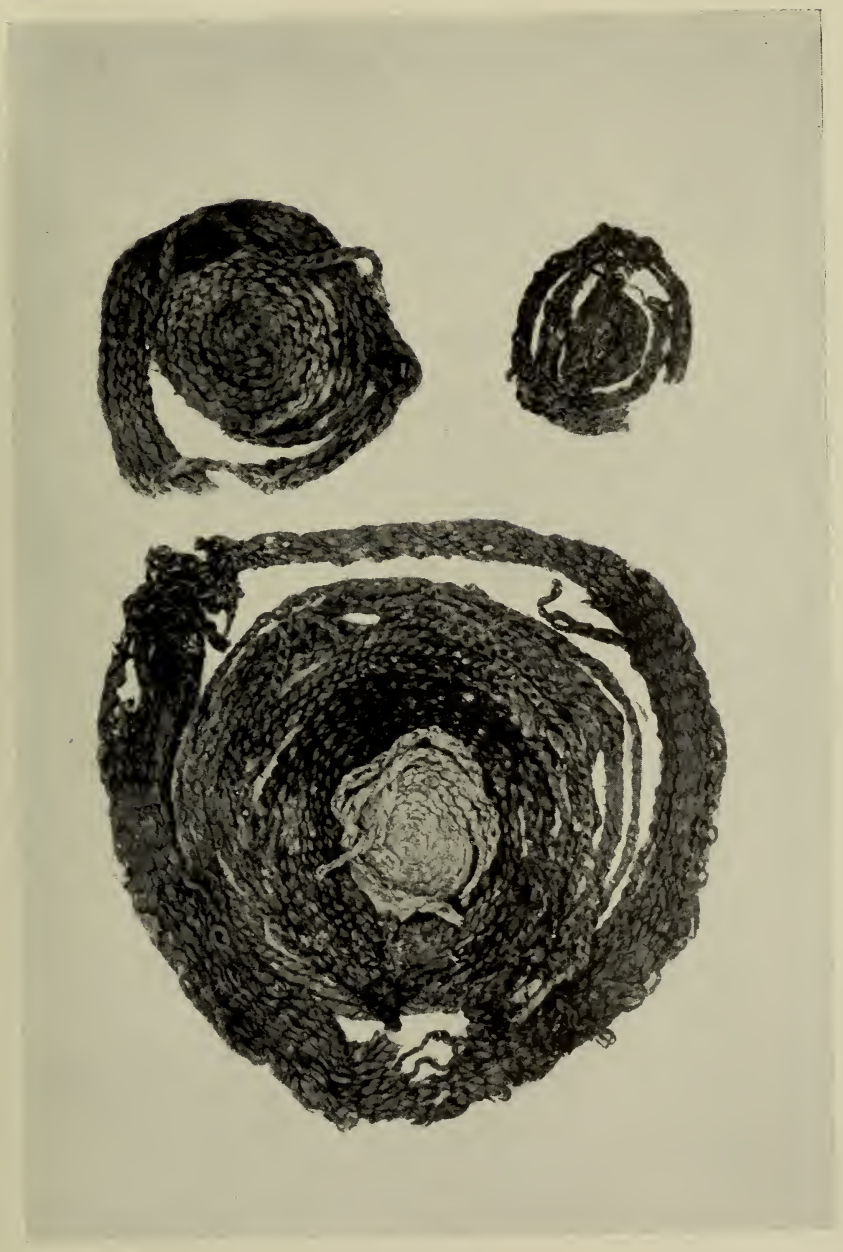
18/7899

PLATE XCII

WOVEN TEXTILE

18/9344

Diameter of largest fragment, $3\frac{1}{8}$ in.



18/9344

PLATE XCIII

MISCELLANEOUS TEXTILES

a. 18/9338. Fringe element.
b. 18/9342. Possible fringe element.
c. 18/9346. Braided cord with knot.
d. 18/9336. Fringe elements.
e. 18/9341. Fringe elements.


a
b
c
d
d
e
e

PLATE XCIV

MISCELLANEOUS TEXTILES

a. 18/9337. Fringe element.
b. 18/9344. Strands of woven textiles (see PL. XCII)
c. 18/9345. Braided cords.
d. 18/9340. Possible fringe element.
e. 18/9339. Possible fringe element.


a
b
c
d
e